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ABSTRACT

A collection of papers on the profession of teaching English for special purposes includes: "Scenes of Endless Science: ESP and Education" (A. Crocker); "Some Problems of a World-Wide Profession" (T. Johns); "The EST Teacher: A Negative View" (G. Greenall); "The Helpful EST Teacher" (W. Robinson); "A Way Forward: A Fusion of Two Cultures" (M. Jackson, J. Price); "The ESP Teacher's Role -- Implications for the 'Knower-Client' Relationship" (P. Early); "The Contribution of Discourse Analysts to ESP and of ESP Practitioners to Discourse Analysis" (P. Robinson); "Self-Directed Learning Systems and the Role of the ESP Teacher" (G. Blue); "The First Five Seconds: The ESP Teacher and 'Out-of-the-Blue' Language" (O. Farrington); "How Many People? Opposing Views on the Function and Preparation of the ESP Teacher" (F. Chambers, J. McDonough); "Leading the ESP Teacher to the Literature" (J. Swales); "The Potential Benefits to the ESP Profession from Greater Awareness of Developments and Practices in L1 Communication Skills Learning" (R. Williams); "The Uses of an Analytic Generator: The Computer as Teacher of English for Specific Purposes" (T. F. Johns); "ESP Teachers, Computers and Research" (P. Skehan); and a report of four working groups at a 1981 conference of the Special English Language Materials for Overseas University Students group. (MSE)

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112 - The ESP teacher: role, development and prospects

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CONTENTS

	Page
INTRODUCTION	5
'Scenes of endless science': ESP and education A Crocker, The British Council	7
Some problems of a world-wide profession T Johns, University of Birmingham	16
The EST teacher: a negative view G Greenall, University of Newcastle upon Tyne	23
The helpful EST teacher W Robinson, University of Essex	28
A way forward: a fusion of two cultures M Jackson and J Price, University of Newcastle upon Tyne	33
The ESP teacher's role — implications for the 'knower-client' relationship P Early, The British Council	42
The contribution of discourse analysts to ESP and of ESP practitioners to discourse analysis P Robinson, University of Reading	53
Self-directed learning systems and the role of the ESP teacher G Blue, University of Southampton	58
The first five seconds: the ESP teacher and 'out-of-the-blue' language O Farrington, University of Aberdeen	65
How many people? Opposing views on the function and preparation of the ESP teacher F Chambers and J McDonough, University of Essex	71

Leading the ESP teacher to the literature 81
J Swales, University of Aston

The potential benefits to the ESP profession from greater awareness of developments and practices in L_1 Communication Skills learning 90
R Williams, University of Aston

The uses of an analytic generator: the computer as teacher of English for Specific Purposes 98
T F Johns, University of Birmingham

ESP teachers, computers and research 106
P Skehan, University of Birmingham

SELMOUS Conference 1981: report of the four working groups 116

Bibliography 130

The papers in this volume are the edited proceedings of the SELMOUS Easter Seminar held in April 1980 at the University of Essex.

The SELMOUS Group (Special English Language Materials for Overseas University Students) is a group of lecturers from British universities specifically appointed by their institutions to research into the language problems of overseas students and to develop appropriate English language courses.

INTRODUCTION

The 1981 SELMOUS biennial Easter Conference was held at the University of Essex. Contributions and discussion focused upon the ESP teacher but, the sub-headings 'Role', 'Development' and 'Prospects' ensured the diversity of papers in this collection. It was thought timely and apposite to choose this subject because, despite the explosion of ESP textbooks and supporting literature especially in student-centred areas, the ESP teacher as such has been overlooked. This volume goes a way towards redressing this imbalance.

Tony Crocker in the first examines the distinctive characteristics of LSP programmes while outlining professional demands made upon practitioners by the situation.

Gerry Greenall and Bill Robinson, in two short articles, present contrasting views of the ESP teacher which question some basic assumptions underlying accepted theory and practice. A further short paper by Tim Johns using the results of questionnaires expresses vividly difficulties inherent in the situations in which many colleagues work.

Discussion of the role of ESP teachers is extended by Janet Price and Mike Jackson, who describe co-operation between a language teacher and an engineer sharing a concern with communication. Patrick Early also addresses himself to the problem of the teacher as the 'knower' of the language with the student dominating the subject. He describes the situation of the 'ESP teacher and the student uncomprehending eyeball to eyeball with the subject teacher breathing irritably in the background', in a way which many of us recognise.

Pauline Robinson examining the relationship between discourse analysis and ESP teachers, George Blue discussing the self-directed learning approach as a partial solution to the problem of providing Service English within the constraints of timetabling and staffing difficulties, and Olivia Farrington

describing her research and conclusions after having been a 'fly on the wall' in laboratory and workshop situations in Aberdeen – all make a bridge between **role** and **development**.

Fred Chambers and Jo McDonough discuss polemically aspects of the ESP teacher's function and training, apparently opposing analytic and synthetic approaches, and in so doing open up invigorating areas of practical and theoretical debate.

In **Leading the ESP teacher to the literature**, John Swales takes a hard, classificatory look at what sort of publications can be termed as ESP from a user point of view. His colleague, Ray Williams, puts the case for greater contact with the area of L_1 Communication Skills.

A link with the future is made by the contributions from Tim Johns and Peter Skehan who convey the immediacy and inevitability of our need to get to grips with the technology of today and tomorrow (by yesterday if possible). They point to the possibilities not only in terms of their range but also in their accessibility to many ESP teachers. We ignore these developments at our professional peril!

Neither this introduction, nor indeed the collection itself, can do justice to the sense of satisfaction and excitement engendered by the reception and discussion of the papers at the Conference, but SELMOUS would like to express its thanks to all who participated and to tender gratitude in particular to the British Council for their strong support. Finally we hope that in the near future some of the themes which emerged in discussion in conference rooms and bars will be taken up and investigated in relation to ESP, such areas as the 'micro' level of classroom management, types of training programmes, one-to-one and small group teaching and conditions of service of teachers in our profession.

Jo McDonough and Tony French

'SCENES OF ENDLESS SCIENCE': ESP AND EDUCATION

Tony Crocker, The British Council

The aim of this paper[1] is to consider briefly and rather generally three questions relating to the role of the ESP teacher:

1 What is distinctive about specific purpose language programmes?

2 What implications might any distinctive features have for the training of language teachers?

3 What necessary conditions might there be for the successful implementation of such training?

What is distinctive about specific purpose language programmes?

In absolute terms, any activity which is part of education in its broadest sense is purposeful, since it is preparatory to something else. The degree to which purpose need be articulated depends directly upon the extent to which it can be assumed – there is less need to say anything if everyone knows what is supposed to be done. As obvious as that point may be, it is important to note from the beginning that LSP courses do not necessarily differ in kind from any other form of instruction including language courses which do not claim to be purpose specific. In abstract, purpose is a constant feature of all systematic instruction; the way it is stated varies according to local circumstances[2]. In order to identify what is distinctive about LSP courses it might thus be more fruitful to look at the way purpose is identified and the reasons for it.

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[1] The shift in 'communicative mode' from monologue written to be spoken to written to be read leads this paper to be slightly different in presentation although not in substance from the original given at the SELMOUS Easter Seminar, 1981.

[2] Circumstances liable to affect the statement of purpose can range from the current academic climate to the type of institution in which the teaching takes place. If for example it is assumed that a language can be adequately described, it is easy to posit a direct relationship between learning the description and acquiring competence. It is then less necessary to identify purposes outside of the language itself since all such purposes would be special subsets of that description.

Alternatively, if language teaching normally takes place in an institution with a commonly agreed purpose, such as a school, the institution's purposes will mediate between the course and the outside world and thereby influence the way course aims are described.

Topic is the most obvious identifying feature. However, as Breen and Candlin[3] note:

> '. . . all learners regard themselves as learning a language for some special purpose.'

There are degrees of generality of purpose, but whereas it is doubtful whether a general study skills course would be considered as different in kind from a course in English for air traffic controllers, it is less doubtful that a course called 'English for examinations' would in abstract be considered as qualitatively different from a course aimed at ensuring a pass in a particular examination. This suggests that topic itself is not as important as attitude towards content. That is, a specific purpose course does not view information about language as being sufficient content in itself, and the emphasis is more one of deriving information about language use or usage from the topic than of using a topic primarily as a way of exemplifying aspects of language. What this in turn suggests is that the focus of interest in an LSP course is on implementation. This, however, is an interest shared by all language courses which emphasise use.

A specific purpose course does not necessarily limit the identified range of use more than a general 'communicative' course; there is little difference in range, for example, between a specific purpose 'English for travel' course and the social survival objective of a communicatively orientated secondary school foreign language programme. This suggests that again the difference is one of intention and focus of interest. That is, the primary concern in the LSP course is in achieving something outside of language through the medium of language, as opposed to a primary interest in achieving an identified level of proficiency in the language itself, even though this may be described in terms of the things that level of proficiency will facilitate.

Without labouring this argument unduly, it would seem that what characterises an LSP course more than anything else is the value such courses place upon language as a means rather than as an end in itself. This implies that LSP is an approach to language teaching, not a subset of something else, as John Sinclair puts it[4].

> 'LSP . . . is not a branch line or a specialised interest — it is simply language teaching of any kind placed in relation to its context.'

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[3] Breen, M P and Candlin, C N. *The essentials of a communicative curriculum in language teaching*. Applied linguistics, 1 (2), 89-112, 1980.

[4] Sinclair, T. *Language for specific purposes*. In: Linnarud, Moira and Svartik, Jan, *eds*. Kommunikativ kompetens och fackspråk. Association Suédoise de Linguistique Appliquée (ASLA), Lund, 1979, pp. 259-268.

What implications might any distinctive features have for the training of language teachers?

If the argument above is valid, probably the most important implication is that there is no necessity for an LSP course to define its objectives in terms of language. In fact, logically, the reverse is true. That is, if the concern of an LSP course is in the achievement of outcomes which are not primarily linguistic, then it is more valid for the course objectives to be set in non-linguistic terms. This gives rise to the question of whether the language specialist is the most appropriate person to define course objectives. As mentioned above, the way in which purpose is articulated depends upon circumstances, not only in terms of practical constraints, but also at a more theoretical level on the degree to which the successful achievement of results is related to language.

There is no straightforward solution to this problem, since just as the language teacher requires access to the cognitive operations of the subject specialism in order to establish valid objectives, so the subject specialist needs to be able to make such operations accessible to the non-specialist. All that can be said is that objectives need to be negotiated between the subject and language specialist, that the subject specialist must have the final say in terms of objectives, the language specialist the final say in assessing the resources required to meet those objectives, and that at the moment there does not appear to be an adequate terminology in which a mutually acceptable set of quantifiable objectives can be expressed. Presumably one looks to applied linguistics rather than the ESP teacher as a source of such a terminology.

A second and extremely important implication of the position taken here is that if the interest of the LSP course is in outcomes, it places absolutely no constraints upon method of implementation. That is, there is no **necessary** content or methodology for an LSP course since the only criterion for course evaluation must be whether what is used works. The equally important corollary of this position is that the language teacher must be accountable, that is, take full responsibility of what he or she does. This would seem to be a healthy position since on the one hand it means that changes in practice must be justified in practical terms, and on the other it forces the client and the language teacher to make realistic estimates of what is possible in the light of resources available. This implies that the role of the practising LSP teacher is not that of an academic whose interest is in a body of information, but that of a professional offering a practical and quantifiable service. The primary value of the body of knowledge possessed by the LSP teacher lies not in that knowledge itself but in the degree to which it enables results to be guaranteed. This implies that the orientation

in the training of L2 teachers should be towards the teacher as facilitator of learning rather than the teacher as source of information that is every aspect of the training course must lie within a general framework of methodology.

Although not a radical position, this approach seems to be at variance with current practice, which tends to view methodology as a component of the teaching skill rather than as encompassing framework. If the language teacher is viewed as essentially a source of information, there will always be dependence upon the descriptive linguist. Their interests however are not coincident, since the descriptive linguist's main concern is with an adequate, consistent and therefore homogenous descriptive system. For the language teacher however language description is only important insofar as it is an aid to learning. If, therefore, language is said to serve different functions, for example Halliday's division into ideational, interpersonal and textual, it might be useful for the language teacher to investigate whether the identified aspects of language which serve those functions are best learnt through different processes of presentation and practice.

Methodology, that is the process of implementation, must, like the statement of purpose, be sensitive to circumstances and be derived from the practicalities of the situation rather than be imposed from the outside. Just as there can be nothing intrinsically 'wrong' in any methodological technique since it must have worked in some circumstances otherwise it would not have been adopted, so there can be no intrinsically 'right' or 'best' technique. The issue is one of appropriateness and of determining which variables are most important in deciding whether a technique is appropriate or not. Again all that can be done here, really, is to ask whether there are adequate techniques for establishing the relationship between input, intake and outcome, instruction and performance.

At present methodology would appear to be primarily dominated by content. It is however becoming increasingly realised that the achievement of objectives is not so much a matter of getting things done as of getting people to do things. The personalities of learner and teacher mediate between input and outcome. This suggests at least three areas of information which are relevant to the selection of methodological techniques:

Context, that is those features of general background likely to influence learning and teaching style — the training and experience of the learners and teachers, sociocultural features affecting eg the relationship between learner and teacher, and the characteristics of the learning institution, eg concerning method of instruction, resources available.

Learning environment, that is the psychosocial factors of the learning group and of its members, the learner and the teacher, preferred individual learning and teaching styles, openness to change etc.

Content, that is those characteristics of the language system and of its purposes relevant to learning the system and implementing it to achieve identified outcomes within a stated environment and context.

The teacher's task could be made much simpler if dominant features could be identified. Certain very useful tools already exist; the 'Types of cultural interaction in an academic setting' described by Ken James[5] is a particularly good example.

Without tools such as these, the LSP teacher has no rationale and few criteria for accepting or rejecting a particular technique. Current practice can be validated by degree of success. Without knowing why this practice should be changed there is less guarantee that any innovation can be reliably trialled by a teacher who already has justifiable working assumptions about methodology. Once again it is possibly not worth labouring this point, yet it does seem inappropriate for so much attention in LSP to be paid to techniques for generating course content when the relationship between input and outcome is still debatable. If the focus of interest in the LSP course is on outcomes, then one might expect more attention to be paid to training LSP teachers in ways of helping guarantee the achievements of those outcomes, that is to methodology in its broadest sense.

The question of content is itself worth looking at in a little more detail. It was stated above that there was no 'necessary' content or methodology for an LSP course. It is however a frequent assumption of LSP programmes that since what is taught must be immediately implementable outside of the language learning environment, then the content of the language course must directly reflect those tasks for which the language is required. Increased motivation and economy of implementation are put forward as the main justifications for this approach.

Since for many students study is a means to qualification, qualification a means to employment and employment a means to income, status, etc, extrinsic motivation is obviously related to the value the learner places upon

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[5] James, K. *Seminar overview*. In: Greenall, G N and Price, J E, *eds*. Study modes and academic development of overseas students. (ELT documents, 109) The British Council, 1980.

various uses of language and the availability of other means of achieving the purpose which avoid the necessity of learning a foreign language[6]. If motivation is not increased by immediacy of implementation of course content, then the argument for economy is indefensible. The contrasting positions put by Roe[7] and by Hutchinson and Waters[8], both the result of specific experience, also suggest that the question of topic is not totally straightforward:

'Training in technical skills for academic purposes must be integrated with the courses for which those skills are intended.'

(Roe)

'A pre-sessional EFL course should aim to give students the means to assimilate the flow of new information in their technical course . . . The ability to cope with a course in electrical engineering derives not from having studied texts on electrical engineering, but on having the presupposed knowledge into which the teacher keys the new information.'

(Hutchinson and Waters)

Obviously different types of learners have differing degrees of control over specialist information, but the issue lies beyond this and is equivalent to that raised concerning the specification of objectives, that is, how intimate is the relationship between language and topic or specialism? An obvious answer is that it depends upon the specialism and the situational variables of use. If the relationship is so close that language and topic are inseparable, and if it is seen as pedagogically most valid to concentrate on direct confrontation of specific performance skills or tasks, then presumably the use of a language teacher who is also subject qualified or of team teaching[9] is the most obvious, although not always the most practicable answer.

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[6] cf eg Crocker, A and de Linde, C T. *Student attitudes towards EST courses as revealed in two university surveys.* (Paper presented at the Regional Seminar on the Teaching and Learning of English for Scientific and Technological Purposes in SE Asia, Regional English Language Centre, Singapore, April 1975) (Mimeo).

[7] Roe, P. *The English Language Centre, Jeddah.* In: Projects in materials design. (ELT documents special) The British Council, 1980, pp. 172-97.

[8] Hutchinson, T and Waters, A. *Communication in the technical classroom.* In: Projects in materials design. (ELT documents special) The British Council, 1980, pp. 7-36.

[9] cf eg *Team teaching in ESP.* (ELT documents, 106) The British Council, 1980.

Even here, however, there is an inbuilt problem since the authenticity of such performance skills or tasks is ultimately largely a matter of expectation. This expectation concerns the way information is shared between source and learner and the cognitive operations that the information source expects from the learner and which the learner expects to carry out on the information source. Underlying the expectation is the issue of what is at risk. The learner is in a low risk situation concerning topic information with the language teacher, and in terms of effectiveness of learning the LSP teacher may be better off giving specific information about language itself. If there is an equivalent distribution of information (in terms of type and level) among the participants within the communicative situation and if the learner has to conduct equivalent operations with that information as in the subject specialism, then there is as much if not more likelihood of the learner approaching the information and the communicative situation with appropriate expectations if the actual topic is not within the specialist field than if it is.

That, like all of the foregoing, is an argument aimed primarily at releasing the LSP teacher from some of the constraints under which he or she currently has to operate — to adopt a methodology which may not be congenial, to be familiar with subjects outside one's own discipline and to put oneself in the position of being, up to a point, a second rate subject teacher. None of these practices are, I believe, inherent in the concept of LSP itself. Until it is proven that language and topic are indivisible or that high level features of language such as the structuring of information within a situation cannot be described and replicated independently of topic, then criteria for determining what is most practicable in terms of objectives and methods of implementation would seem to be of more immediate concern to LSP teacher training than the current emphasis on theoretical models of course design and materials generation.

What necessary conditions might there be for the successful implementation of such training

Whatever approach to LSP is taken, some degree of reorientation is demanded from the language teacher. If the LSP teacher's role is predominantly that of source of information, there is pressure to become familiar with a range of other subject disciplines and to commit personal resources of time and energy to activities such as materials preparation.

If on the other hand the LSP teacher is expected to become primarily a learning facilitator, there is a need to acquire skills of management — the ability to work **with** learners to achieve results, to make practical judgements based on adequate information within a working environment, and to become accountable for the decisions based upon those judgements.

In this paper I have only argued one case, and as noted above it is only an argument. It was chosen because it appears to meet more fully certain preconditions identified for the acceptance of innovation[10]. It therefore seems to be more practical than its alternative and coincides with my belief that if LSP is not practical it is nothing. These preconditions are: relevance, effectiveness, feasibility, efficiency and balance of advantage. It seems to me that a similar set for preconditions must be met if LSP teachers are to be successfully trained. Standard approaches to LSP appear to have made the teacher's role more demanding rather than more efficient and to have overlooked the fact that whereas the learner may have a specific purpose, the teacher may not. The balance of advantage is therefore decidedly not in the teacher's favour. The training offered to an LSP teacher might be more effective if it noticeably changed that balance of advantage. The biggest unrealised advantage of the LSP course is the bargaining power it provides the teacher with. Once quantifiable objectives are set, it is easier to estimate the resources required to meet those objectives — time, people, materials etc. If the resources are fixed then the objectives themselves must be negotiable. This would appear to put the teacher in a much stronger position than with traditional approaches to language teaching which may or may not have been appropriate in terms of methodology, but which, by not specifying a level of proficiency over a range of skills, thereby implied that what was taught would enable the learner to do virtually anything, and were therefore certainly unrealistic in terms of aim.

The other preconditions I believe can best be met by stressing the importance of methodology in the sense discussed above, since this does not enforce change upon the teacher but provides criteria for assessing the variables which might make change necessary and simultaneously opens up the area in which change can take place. If for example, individual proficiency in language is no longer the primary concern, then, if resources are fixed, a combined group or class proficiency might be adequate to meet the required objectives, or the LSP service unit might best devote its resources to an editorial or to a translation function. In short, all means become possible as long as the quantity of the educational objective is maintained.

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[10] See eg Hurst, P. *The analysis of educational development: a decision-making approach*. (Paper presented to the Fourth World Congress of Comparative Education Societies, London, June 1977.

To sum up, the following points have been noted:

one of the main characteristics of LSP is its interest in language as a means rather than as an end;

LSP is therefore an approach to language teaching in general, not a specialised interest;

a terminology is required capable of describing quantifiable objectives for an LSP course which is acceptable to both the language specialist and the subject specialist;

since there is no compulsion to set LSP course objectives in terms of language, there are no constraints on the content of methodology of an LSP course other than what works;

the LSP teacher is to be viewed more as a facilitator of learning than as a source of information;

the LSP teacher's professional knowledge must therefore all lie within a framework of methodology;

at present the only link between input and outcome is the practical one of what can be seen to work;

the viability of an approach depends upon a complex set of situational features;

the teacher must develop sufficient professional judgement to evaluate the situation features to the degree necessary to make the best practical decisions;

the teacher should be accountable for decisions taken and should be viewed as a professional offering a quantifiable service;

as a professional, the teacher should be acknowledged as the final arbiter as to what can be achieved with resources available;

any LSP teacher training programme must ensure that the responsibility asked of the teacher is matched by the control thereby provided over resources required or over probable outcomes, and over the method of course implementation.

SOME PROBLEMS OF A WORLD-WIDE PROFESSION

T F Johns, University of Birmingham

I hope that I may be forgiven for approaching this topic by referring in the first place to the history of the association that has organised this seminar. SELMOUS – or more accurately the SELMOUS group – originated from an informal meeting of a handful of people in Vera Adamson's flat in St John's Wood during the fifth annual conference of the International Association of Teachers of English as a Foreign Language in January 1972. Despite the acronym (derived from Special English Language Materials for Overseas University Students) adopted at the conclusion of the inaugural meeting at Birmingham University during the Easter vacation of the same year, our purpose was not then and is not now to act as a clearing-house for ESP materials. The impulse underlying the formation of the group was threefold:

1 To overcome the feeling of isolation we felt in our different institutions by setting up an informal network of personal friendship and professional contact.

2 To exchange ideas and information on a regular basis through 'closed meetings' three times a year, and 'open meetings' such as this one every two years.

3 By restricting membership to lecturers with full-time responsibility for teaching English to overseas students at universities in the United Kingdom, to emphasise to our institutions and to the world at large our belief in the need for professional expertise and commitment in this work.

In the nine years that have passed since the group was founded, there has been a steady increase of interest in the sort of work done by members of SELMOUS – an increase symbolised by the general acceptance of the initialism EAP (English for Academic Purposes)[1] to distinguish the centre of our concern from EOP (English for Occupational Purposes) and to embody

[1] It may be of some incidental interest that the origin, spread, and possible demise of this term can be traced with some precision. It was coined (or possibly re-coined) in passing by a member of SELMOUS at a meeting with two British Council officers in October 1974, and was apparently in general use in the Council by the Spring of 1975: see the preface to Jones and Roe (1975), where it is explained and contrasted with EOP. By 1977 the EAP/EOP distinction had crossed the Atlantic (see Todd Trimble and Trimble, 1977), and by 1980 it was being criticised as no longer relevant (see (Hutchinson and Waters, 1980).

the perception that there is an identifiable set of 'academic purposes' or 'study skills' which cut across subject boundaries, and which should form the framework (or at least an important component of the framework) for the teaching of English to our students.

The growing interest in our work, and the paramount position of English as the world's medium of academic communication, have led to calls on members of SELMOUS to meet, advise and train EAP teachers from many different parts of the world. We receive a stream of visitors in our departments: and we take part in seminars and workshops in the UK and abroad. The value of such contacts may be somewhat different from each of the three parties to the transaction. For such honest brokers as our friends in the British Council, members of SELMOUS have the advantage of being readily identifiable and accessible – no more than a phone call away from Spring Gardens or the local Council office. For the teachers we meet in this way, we hope that we are seen as colleagues rather than as pundits, since we are all practising language teachers, with the chalk-dust engrained beneath our finger-nails, and the scars of failure still fresh upon our souls. And for ourselves, such contacts offer an opportunity not only to make new friends and visit new places, but also to 'step back' for a moment from the immediate problems that face us in our departments, and to view our work and our ideas within a wider context and through the eyes of fellow teachers.

From this perspective, one of the perceptions that has struck the writer most forcibly during recent years is that ours is, indeed, a world-wide profession. There are, of course, large differences in the situations in which we teach: between countries in the Western world, for example, and those in the Third World: between settings where English is in use as a first language and those where it is a second or foreign language: between those where the need for English is immediate and those where it is deferred: where it is well-defined, and where it is ill-defined: and so on. What unite us are the sense of a common search for underlying principles to guide what we do, and, even more, a shared set of frustrations and difficulties that seem to stand in our way. Significantly, they are much the same frustrations and difficulties that prompted the foundation of SELMOUS: an uncertainty about professional role and professional status: a struggle to carve out an appropriate niche for EAP in different institutions: and a sense of isolation from other teachers doing similar work.

It has been my practice for some time to get participants to 'talk through' such problems at the beginning of my workshop on EAP, both for the purpose of general catharsis, and to ensure that whatever solutions are proposed later should be applicable within, and aimed at overcoming, the

constraints of the real situation (cf Early and Bolitho, 1981). Experience of the recurrent grouses and grievances uncovered in such sessions led me just over a year ago to write a short questionnaire which could be used to focus the discussion. Part of the questionnaire asks teachers to rank certain problems in order of importance, and to add any comments that they might wish to make. I have by now collected completed questionnaires from just under 100 EAP teachers from a wide range of different countries, and hope that the combined rankings and a representative selection of comments on each problem will give a revealing picture of a hitherto-neglected aspect of our profession.

The problems, in rank order of importance, were as follows:

1 Low priority in timetabling

This was, overwhelmingly, the problem that occupied first place. From the numerous comments it seemed that EAP might best be defined as what happens in most academic institutions very early in the morning, very late in the day, and during the lunch-break:

> 'English has to fit in during hours 'left over' by the main subject teachers.'
>
> 'Worst possible times have been allocated.'
>
> 'The only space given is from 8 am to 9 am and lunchtime.'
>
> 'English from 4 pm to 5 pm after lectures from 8 am to 4 pm.'
>
> 'I work in the afternoon. Students prefer the morning and lunchtime.'

Notice how often the language of the comment seems to take for granted the passivity and inferiority of status of the EAP teacher. Some comments raised the question of flexibility in timetabling. This, it seemed, cut two ways:

> 'Periods allocated cannot be altered on any account, which is quite different to periods allocated for main subjects.'
>
> 'Acquisition of English teaching hours by other lecturers.'

It was more than the timetable that rankled for one respondent, who launched into a more general attack on the arrangements made for EAP teaching:

'Classrooms declared as being unfit for habitation by the medical authorities of this campus . . .'

Only one respondent could reply, cheerfully and self-confidently:

'I stopped all that.'

– though he did not, unfortunately, explain how he had done it.

2 Lack of personal/professional contact with subject teachers

The questionnaire and the subsequent discussions elicited a number of anecdotes illustrating problems of communication between the two sides. For example:

'My brief experience . . . has . . . led me to be wary (and weary) of subject teachers. I invited a statistics expert to talk to my students about statistics, a topic I no way felt able to discuss in any language. He . . . gave, in brief, an off-the-cuff lecture on language, filled with the prejudices of people who've never studied it or thought about it . . .'

Some respondents saw the problem as stemming from the side of the subject-teacher:

'Subject teachers are friendly and cooperative but allergic to English teaching . . .'

Others saw the responsibility for breakdown (and, conversely, the opportunities for repairing that breakdown) as resting with the EAP teacher:

'The English teachers sit together in their own office . . .'

'This I feel is partly my own fault for when I did contact them they were most cooperative.'

'I ask them to suggest books they would like students to read . . .'

while others saw the problem as one of mutual ignorance:

'They are willing to help but do not know how and we're not sure what form of help we need either.'

In some institutions there seemed to be no problem:

> 'There is perfect harmony and understanding.'

3 Lower status/grade than subject teachers

Some respondents saw this in terms of conditions of employment, and in particular pay:

> 'Only affects salary . . .'

> 'Not status or grade but much lower pay because working for BC . . .'

while others identified clear differences of academic status:

> 'An English instructor is not even considered a 'teacher' at the university.'

> 'We are 'lecturers' and subject teachers are 'professors' . . .'

Others, however, felt that the differences were more subtle:

> 'Lower status is not overt – most of my ESP colleagues are lecturers, as are most members of other departments – but is sometimes hinted at – we don't have PhDs or an 'academic' subject.'

A point worth making here (and one which the questionnaire could and should have investigated further) is that in this context 'subject teachers' include non-ESP teachers of English. A typical pattern is that each year one or two of the very best graduates of a university's English department are given the opportunity to stay on as 'assistants' within the department, taking language classes for first and second year students of English. If graduates who just miss such appointments want to set foot on the academic ladder, their only route is through the grind of service teaching for (and, in some cases, in) other departments. It is not surprising that in these circumstances ESP should be seen as some sort of purgatory, to be escaped as quickly as possible: that the teachers should tend to develop an aversion for their students' main subject areas: and that the teaching is too often a tired rehearsal of what the teacher regards as 'proper' English teaching – that is, teaching English to English specialists.

4 Isolation from other teachers of English doing similar work

This was ranked close behind the previous two problems, and elicited a number of comments: for example

> 'No staff meetings in college or regular meetings with the teachers in other schools.'

> 'It is only (during this workshop) that I have met English teachers from other universities (in my country).'

Who is to blame for isolation? Some saw the responsibility as lying elsewhere:

> '. . . the (head of English) has no interest in ESP . . .'

but others placed it with the teachers themselves:

> 'Within institution . . ., yes, but as a consequence of most of those teachers' choice to maintain isolation.'

5 Lack of respect from students

This is a problem which is occasionally raised in discussion with ESP teachers: where it exists it is clearly linked to the other problems (cf the last comment on status/grade above). As it happens, few teachers were prepared to give this factor a high rating on the questionnaire, and only one gave it top rating. This low ranking may in part be related to the way the problem was phrased: many of the respondents came from cultures where 'respect' – particularly of student for teacher – is given a very definite meaning and value. One respondent replied, perhaps offended that the question should have been raised at all:

> 'Due respect is given at all times, within and outside the university.'

Some respondents pointed out that while there might be respect for the teacher, there was sometimes very little for his subject:

> 'Students tend to give second preference to learning English when confronted with the work load of main subjects.'

Students attitudes towards English can be complex. The following comment describes a situation that will be familiar to many:

> 'The fact that some medical students are exempted from English classes seems to depress those who have to follow the English classes. They feel that those already competent in English are devoting to their subjects the time they themselves are 'wasting' on English. They also feel somewhat ashamed that others see them attending English classes. However, they confess to the English teachers (some of them anyway) that they need English . . .'

Looking back over these comments, it seems that the theme which recurs most insistently is that of professionalism itself, viewed both 'externally' and 'internally': that is to say how far are our activities seen by others as fully professional, and how far do we ourselves see them in that light? This same external/internal distinction might be applied to whatever solutions are possible. The formation of SELMOUS, for example, was in these terms an internal response to the problems of tertiary-level ESP teachers in the UK: we were – and are – determined to establish our professionalism through our own efforts. There have been many other examples of such communal self-help in recent years: for example, the formation of regional ESP associations, and the growth of the 'little magazines'[2] such as the *Oregon newsletter* (USA), *ESPMENA* (Middle East), *EST learning* (China) and *ESPUVALLE: ESP Chile newsletter* and (perhaps not exactly 'little') *Lenguas para objectivos especificos* (Latin America). It would be naive to suppose, however, that self-help can, unaided, solve all the problems that we face. We need also to generate pressure for external change, particularly in such matters as conditions of work and conditions of employment: the formation in the UK of the Overseas Contract Teachers Association is one example of the attempt to generate such pressure. The most appropriate balance between 'internal' and 'external' measures will, of course, vary between one institution and another and one country and another: what is certain is that we can only gain strength from the realisation that ours is, indeed, a worldwide profession with many problems in common and – by the same token – many opportunities in common too.

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[2] I owe this descriptive label to John Swales.

THE EST TEACHER: A NEGATIVE VIEW

G M Greenall, University of Newcastle upon Tyne

What is the ESP teacher? In this short presentation, I would like to attempt a deliberately negative view of what the ESP teacher – particularly as exemplified by the teacher of EST – has been and has become over the last ten years – that is, the period in which EST has developed from modest beginnings into the world-wide profession which it is today. A negative view, particularly one given in a few minutes, will of course involve over-simplification of the issues, a concentration on the worst aspects of EST teaching, on the most unfavourable attributes of EST teachers, but there is an underlying core of truth which applies, to a greater or to a lesser extent, to all EST teaching.

I have said that EST as we know it has developed over the last ten years. It was exactly ten years ago that serious thought, on any large scale, was first given to EST. I'm thinking in particular of the well-known article by P Strevens, *Alternatives to daffodils*. Let's get straight to the point by looking at some of the key statements from this article, where the writer is criticising the state of affairs at the time.

1 '– the teachers of English are trained in literature; the syllabuses and examinations generally lead up to a literary and pre-literary training; the teaching is informed by the values and symbols of literature,'

2 '– when subjects are not seen by the learner to be related, transfer of knowledge from one to the other is minimal.'

3 '– the two (ie literature and science) do not share the same symbols, sets of values, legends and traditions. Here, again, a course for scientists would use completely different texts and samples.'

There are a number of statements here, some implicit, some explicit, some axiomatic, some not. Let's look closely at the statements made.

a
1 – the two (ie science and literature) do not share the same symbols, sets of values, legends and traditions

2 – transfer of knowledge or skills from one subject to another, if they are not seen to be related by the learner, is minimal

b
- 3 – the syllabuses and examinations generally lead up to a literary or pre-literary training
- 4 – a course for scientists would use completely different texts and samples (ie these are not used now)

c
- 5 – the teachers of English are trained in literature
- 6 – the teaching is informed by the values and symbols of literature
- 7 – subjects (English and science) are not seen by the learner to be related (therefore transfer of skills from one to the other is minimal)

As I have said, Strevens was criticising the state of affairs in 1971. I have divided the statements into three groups, a, b, and c. The first group are presented by Strevens as axiomatic, and I think we can still take them as axiomatic today. The second group of statements, in contrast, would seem to be no longer applicable today. EST syllabuses quite clearly do not lead up to a literary training, and courses for scientists quite clearly do not use literary texts and samples.

If we move to the third set of statements, however, it appears that in some respects the situation may not have changed that much after all. My impression is that statement number five is still as generally true today as it was in 1971. If it is not true that most EST teachers have a literary or literature biassed language training, then it must be certainly true that the majority have a humanities background. The scientist who moves over to EST is still a relatively rare being. Statement number six is a little more problematic. Ostensibly, the teaching is no longer informed by the values and symbols of literature. But is it not possible that false assumptions are being made? If the values and symbols of science and literature are so very different, can the EST teacher be expected to absorb the values and symbols of science without the thoroughgoing training which scientists have? Couldn't the values and symbols of literature somehow still be present amid what may be just lip-service to science? The seventh statement is related to this. Previously, Strevens claims, the English lesson and the science lesson were seen as unrelated. The old type of English lesson has therefore been replaced by something else. But is this new type of lesson necessarily seen as any more relevant than the old type? It may appear to have scientific content, but if the science is the wrong kind of science, if it is inappropriate, if it is conceptually naive, if it is incorrect according to current views, it may be seen as even more irrelevant than the old type of lesson, and even more demotivating.

If we thus question the last three statements, we have to take another look at the second group of statements. The syllabuses now no longer lead up to

a literary or pre-literary training. So what kind of training do they lead up to? Is it a scientific training? If it is, this is certainly not the aim of EST, but rather the aim of basic science lessons. If basic science is what the EST lesson is trying to do, the EST teacher is certainly not qualified to do it. There seem to be objections to the scientifically naive EST teacher no matter what category the students belong to. If they are already practising scientists who are learning English in order to communicate their science in a different medium, the science content and its treatment will probably be inappropriate and conceptually naive. If they are learning English in order to learn science, as in EAP situations, the EST teacher has necessarily to pre-empt a certain amount of science teaching, and this he is not qualified to do.

There are objections of a related nature when we look at statement number four. The texts and samples may have changed, but they are largely still chosen and exploited by teachers of a literary background, perhaps according to totally inappropriate criteria. It was thought for a time that the use of authentic texts would solve the problem. But the concept of authenticity is now seen as an extremely complex one, and virtually unusable for practical teaching purposes. Compounded with this is the fact that many authentic texts, in the opinion of scientists themselves, are extremely poor examples of scientific writing. Because of the complexity of the authenticity problem, EST has been unable to take all the factors into account, and consequently, to go back to our axiomatic statements, transfer of knowledge or skills from EST to science has often been minimal.

To sum up what I have been saying so far, then, there has been a danger right from the start of the literary EST teacher and course designer choosing inappropriate language or skills as his objectives and a temptation, basically, to choose what he himself understands. This has been called the 'bicycle pump' syndrome. I have also suggested that the question of authenticity, especially when compounded with the problem of communicative quality, is so complex as to be a rather unhelpful notion in designing EST courses. The only way round the problem is to have an **intuitive** feel for what is appropriate for scientists, and it is just this intuition that the EST teacher, with his literary background, does not possess.

Strevens' article was of course written during an era of faith in the concept of register, word counts, frequency counts etc. This faith, together with the more unqualified reliance on authenticity, has been superceded by a reliance on the concepts of notions and functions as a means of making EST relevant. A list of these categories, arising from the conceptual and interactive processes which a scientist is thought to be involved in, are taken as encapsulating in some measure the sphere of activity of the scientist and therefore as an adequate base for a language course. But even these lists of

science activities and corresponding lists of uses of language in notional/functional terms must be an oversimplification of what is really going on. Any attempt to analyse a scientific text, or any other text for that matter, will quickly reveal that any item of language in that text is multifunctional; functions are bound together in an intricate way which is quite beyond us to analyse, at least in terms of the full text. The statement of Candlin, Kirkwood and Moore *(Developing study skills in English)* is symptomatic of the state of affairs even today. They said:

> 'We found that when we tried to analyse texts according to various logico-grammatical, functional and grammatical headings that in fact many of our categories were either too vague or were pseudo-categories or that categories overlapped considerably. In short, we were faced with the fact that language is multi-functional and that attempts to dissect it into discrete functional categories, while perhaps theoretically desirable, lead to large problems when attempts are made to measure actual utterances against only one functional heading. Our students did not seem able to tackle these problems successfully.' (p. 61)

Can we honestly say, then, that the analysis of scientific discourse has reached such a level as to be able to support a technology of EST? There have been a number of *ad hoc* analyses, tentative models, lists of science acts, crude models of academic knowledge etc offered as a basis for approaching scientific discourse, but even if these are valid in any measure, the whole picture of how they are mapped onto a scientific text is still totally beyond us (despite, it must be said, a number of very intriguing insights). Nevertheless it has been suggested that we 'should proceed with EST programmes' anyway. The problem, of course, with simplistic descriptions is that they may lead to simplistic prescriptions. The EST materials may serve to unnecessarily simplify and stultify the scientific discourse produced by the student, or may seriously limit his sensitivity to it. If we are to proceed with EST programmes, then, it should certainly not be with EST teachers who lack the necessary intuitions to offset inadequate descriptions. Widdowson recognised the problem of lack of adequate theoretical bases. He criticised both the operational view, which proposes that one should proceed with the simple models one has, and the theoretical view, which is basically that we cannot effectively teach what we cannot explicitly describe, thus leaving the language teacher with nothing to do but stand and wait. Widdowson suggested procedural solutions, such as the use of the scientific non-verbal device (diagrams, tables, graphs etc) as intermediaries between the student's knowledge of how his own language is put to communicative use in scientific discourse and his knowledge of English usage learned at school. Yet even this solution has its limitations and dangers. The most communicative parts of a scientific text, and its very *raison d'etre*, are precisely those parts which lie outside the range of

diagrammatic or graphical representation. And these non-verbal devices must be particularly dangerous in the hands of EST teachers who have not the necessary scientific intuitions to offset their limitations.

EST as presently conducted has been for the most part something of a hit-and-miss activity. If a student happens to be critically receptive to this kind of approach, he may benefit from it. The texts and samples may be inappropriate, the conceptual basis may be simplistic, with a consequent fall in motivation. At worst the language can be narrow and restricting, and even counterproductive if it is crippling the natural language learning process which is going on while the student is actually doing science in English. We have had alternatives to daffodils. Shouldn't we now have alternatives to bicycle pumps? A way forward would seem to be to train all EST teachers thoroughly in science, or to select EST teachers by taking into consideration their scientific background. Either is unrealistic. But there is another way forward. The EST I have been talking about is English for Science and Technology. A new kind of ESP seems to be emerging, with the preposition for being replaced by another.

EST -- English for Science and Technology
EST – English with Science and Technology

There are a number of closely integrated and team teaching projects under way where the ELT teacher and the science teacher work closely together. This may offer an opportunity to overcome the problem of the literary EST teacher. But a problem may always remain which will be proportionate to the degree of separateness and servility of the English component. To counteract separateness, nothing less than team teaching is satisfactory, and to counteract servility, the ELT teacher should think in terms of a positive contribution at least equal in status to that of the scientist. It is thus that his literary background can become a positive factor. I will pre-empt my colleagues from Newcastle slightly by finishing with a few words written by Bronowski. He wrote:

> 'The world which the human mind knows and explores does not survive if it is emptied of thought. And thought does not survive without symbols and concepts. The symbol and the metaphor are as necessary to science as poetry.'
>
> (Bronowski, 1961, p. 46)

THE HELPFUL EST TEACHER

Bill Robinson, University of Essex

It is often taken as axiomatic in the design of EST courses that the students 'already have a knowledge of basic science' (Allen and Widdowson, 1974) or, at a different level, that the students 'will have an advanced knowledge of objects, substances, processes and operations' (Mackay and Mountford 1976). Widdowson (eg 1976) takes this knowledge for granted. He suggests the materials writer should compose a text in basic science and 'foreground' certain rhetorical features, thus giving the students practice with those elements of discourse in which the students might be expected to lack proficiency.

Indeed Drobnic (1978) has gone so far as to develop a teaching method that explicitly relies on the students' subject knowledge as a necessary input to the lesson. The EST teacher provides the linguistic framework for the students' specialist contributions on a 50-50 basis.

However, there are a growing number of references in the literature to EST students who do not seem to have either the 'concepts' or 'the modes of thought' of science: thus Pauline Robinson (1980) questions the truth of Allen and Widdowson's basic assumption at anything but the 'tertiary education' level. She suggests that, even at university level,

> 'Many students do not have that much knowledge of science, even in their own languages, because it does not exist in those languages. That is why they are learning science in English.'

This is an extreme statement: students seeking university entrance in science or technology must have had **some** science education to give them entry qualification. But **what sort** of science was it?

Nolasco (1978) writes of first year medical students at King Abdul Aziz University

> 'Coming as they do from an environment of traditional book-oriented science teaching . . . their background means that many of the science skills are in fact alien to them.'

Similarly Holmes (1979) says of technology students:

> 'the students have received only a very basic background in science and technology and they do not have a really good grasp of the concepts, approaches and terminology of their speciality in the native language.'

This hardly accords with assumptions like Allen and Widdowson's, which are often taken as the basis for EST courses.

Holmes, himself a chemistry graduate, sees the development of concepts in science pedagogy as a linear and cumulative process:

> 'the whole of science and maths teaching is concerned with the development and application of concepts. These are introduced, exemplified, applied and then used for the introduction of further concepts . . . each successive stage is dependent upon the preceding stage.'
>
> (*Ibid* 47)

Cleary (1975) quotes Ausubel to much the same effect, adding that:

> 'Comprehension fails in such a chain when . . . one of the links is not adequately grasped and consolidated.'

A number of writers have drawn attention to the rote-learning strategy of many EST students, thus Jones and Roe (1972, p.20) suggest information may be stored as 'verbal constructs rather than as a set of operations', other writers include: Dudley-Evans and Swales (1980), Adams-Smith (1979), Nolasco (*op cit*) and Robinson, B (1978). Rote-learners will, I submit, have developed a strategy of focusing on 'today's concept' as a formal definition to be memorised, but not have associated it with previous concepts in the chain. They will not have an exploitable grasp of the **concepts** of science.

In school systems when students rarely get to perform experiments themselves, or even to see a live performance, the students will not be used to making scientific inferences from observations: one of the key **modes of thought** of science.

It is on the grounds of this dual weakness in some students – weak grasp of concepts and of the modes of thought – that I would suggest that texts should not be the preferred mode of presentation to students in the initial stages of an EST course: the students already have their own well proven strategies for dealing with texts-memorisation.

Having thus attempted to draw attention to some first year university students who are less than fully-fledged scientists, I would now like to look

briefly at the other end of the EST scale, say the Johns's (1976) 'experienced learners', the postgraduates who

> 'will tend to look for abstract organising principles underlying data and (are) used to using those principles to organise further data '

For these students, Widdowson's (eg 1976) texts on basic science will again be inappropriate; these students have long passed that conceptual stage. However, they will still need to come to terms with the problems of eg information structure: what counts for 'logical' structure in a sophisticated text is, to some extent, culture specific and students need help in making this cultural adaptation. Simple, EST teacher composed texts are unlikely to fulfil this role.

I would like to consider one other cut across the EST spectrum – the EOP (say) City & Guilds technical student. As Hutchinson (1978) explains, the chief mode of presentation to this student is not the text book, not even the lecture, but the practical demonstration. The instructor has a large visual display, often the object itself (eg a diesel engine) with which he physically interacts, carrying out indicating and/or operating actions as he gives a spoken explanation. Here again, texts would not be an appropriate starting point on an EST course.

However, whilst suggesting that texts may be inappropriate for both pre-undergraduate and technician courses and that **basic science** is wrong for postgraduates: I would strongly suggest that **low-level basic science** might be right for pre-university and technician students and **sophisticated texts** are right for postgraduates. I would further argue that low-level **science activities** and **high-level texts** are manageable by the EST teacher and enable him to intervene in a helpful way.

There has always been controversy about how much 'science' the EST teacher is, or should be, contracting to involve himself in. There is at least a section of the EST teaching cadre that is willing to dip itself into sub-O level scientific waters; eg.

1 At the pre-university level

Nolasco (*op cit*) at KAU reports teachers involved in Nuffield Science Activities (see also King, 1978); Simon (1981) has developed an exercise in logic using four colourless chemical liquids and nine test tubes. These activities are exploited as inputs to writing courses.

2 At the technician level

Hutchinson (*op cit*) suggests the teacher should 'deliver a short presentation of the micrometer' from a cue-sheet rather than from a written out script.

3 At the postgraduate level

This sub-O level science activity would clearly be inappropriate at this level: further the EST teacher cannot cope with the conceptual content of the specialism already mastered by the students.

However the student still has problems in the area of 'study skills'. The EST teacher can recognise textual structure – both at the level of rhetorical acts and functions and at the level of information structure. Being able to handle such structures is, as Widdowson insists, a large part of what it means to be a scientist. As Dudley-Evans and Swales (1980) point out, other cultures have other ways of structuring the paragraph. In helping the student to structure his texts in new ways and to find new ways of extracting information from texts, the EST teacher is engaging in science.

Consider the case of the communicatively incompetent student put into the subject class on a sink-or-swim basis. Assuming he will acquire the necessary skills more efficiently with help rather than without, we may ask what help he might expect to receive from the subject teacher.

The subject teacher will notice symptoms of substantard performance: to the undergraduate he might say 'Poor discussion of your results'; of the technician 'He doesn't seem to take notes during the demonstration and then forgets it all afterwards'; to the postgraduate 'That's not how you summarise the literature' and of all three 'They can't keep up with the reading'. But what help can the subject-teacher give to solve the underlying problems of the students? He expects to be responsible for furthering the students' knowledge in the subject or the skills of the trade. The subject teacher expects the students to bring certain base-line skills with them – many of which have a large, culture-specific component.

Assuming we are improving our **linguistic** analyses of scientific discourse on the one hand and study skills on the other, both within a socio-cultural matrix, the EST teacher can provide the learner with help in a way the subject teacher is not used to: by practising **non-consequential** simulations. These non-threatening models provide the student with opportunities to try out solutions to communicative problems. In the event, symptoms of the student's difficulties will, indeed should, arise and the facilitative role of the

EST teacher will come into play at the feedback stage: he is able to analyse the symptoms, suggest repairs and practise further simulation in the way the subject teacher cannot.

Thus for the pre-university ST student and the student technician, the EST teacher will need a grasp of sub-O level concepts (surely no great imposition for a postgraduate teacher): the modes of thought of science he has to some extent already, as they differ only in degree, not quality, from those of other Western academic disciplines of which applied linguistics is one (from this assessment I exclude the language of mathematics). The students, on the other hand, may well not have the concepts (for reasons given earlier) and are thus unable to bring to the negotiation of meaning with text the background knowledge the writer assumes and the subject teacher expects. By experiencing scientific activity of the Nuffield type and then simulating eg laboratory reports, the students will become familiar with the modes of thought of Western science and then, at last, be in a position to interpret their texts and lectures.

For the postgraduate ST student, the EST teacher has the simulations of eg Jordan (1978) or Sheerin (1981) as models, or the information structure work of Johns (1980).

With the less advanced students, the EST teacher can help to repair the broken chain of concepts. At all levels, the EST teacher, having himself been educated in a Western culture and being aware of the findings of applied linguistics, especially into the areas of textual structure and study skills, is in a position to help the student overcome the display of symptoms which the subject teacher can only detect.

A WAY FORWARD: A FUSION OF TWO CULTURES or TEACHING COMMUNICATION TO ENGINEERS

Mike Jackson and Janet Price, University of Newcastle upon Tyne

Dissatisfaction with ESP has led a number of practitioners to find solutions to their problems of relevance and authenticity by closer collaboration with subject specialists. This in turn is raising the interesting question of whether ESP approaches, traditionally used with non-native speakers, might not be applicable for native speakers too. There are a number of team-teaching ventures in progress and what we would like to describe here is just such a one and one in addition which is aimed at native and non-native speakers alike.

Recent developments in education relevant to the current interest in the teaching of communication

In order to put these team-teaching projects into perspective, it is relevant to look at the more recent attempts both to integrate language and specialist subjects and to improve students' communication skills. During the early 1960s courses in communication were beginning to develop in further education colleges. The rise of these courses seemed to suggest that language training up till then had been for the vast majority of the population inadequate, that it needed to be more closely related to actual needs and that it was the proper concern of all human beings, no matter what their speciality. These courses derived partly from a desire to widen the education base of 'non-arts' students (oddly there was not the same move to widen the base of 'non-scientists'!). They were a form of re-defined English teaching whose aim was to produce more effective citizens, by training them to write better letters, to understand tax forms, to analyse newspaper editorials and so on. They derived partly too from a need to fill gaps in knowledge, to perform a more specific linguistic function, a remedial role in fact. This was natural enough since a high proportion of the students in these technical colleges had 'failed' in the normal system, were looking for a second chance and were by and large less linguistically competent. Such colleges in urban areas also included considerable numbers of non-native speakers.

Communication studies at this time did not seem to be, directly at least, integrated with other subjects on the curriculum. Students were learning how to communicate in general, not in relation to particular subjects. In other words, there was no obvious transfer from this course to others. Communication was studied in its own right.

A related development was the interest in study skills. The late 1950s saw the beginning of publications training learners to be better students. One of the first was *How to study*, an American publication by Morgan and Deese[1] The language or communication class now had another brief, with short-term goals and more immediate spin-off.

At the same time, research into language variation, the interpretation of language as a tool, as a means to an end, was influencing attitudes. One result of the work of the sociologists and sociolinguists such as Bernstein and Labov, manifesting itself in the middle 1960s was a re-appraisal of what mother-tongue teaching should be about. The Bullock Report *A language for life* (1975)[2], stressing the need to recognise the role of language throughout the school curriculum, was clearly expressing a deeply-felt conviction that artificial barriers between subject areas should be broken down and that the teaching of language should not be divorced from the teaching of other subjects. Another result was the proliferation of courses and materials in languages for special purposes, with a major emphasis on English for the non-native speaker. This development which was started so full of hope and good intentions has in many instances created a new discipline which is seen as an end in itself which may be totally inappropriate for those deemed to require it.

Subject-language integration projects have also been a feature of curricula in less hide-bound institutions. Interesting work has been carried out at Kingsway-Princeton College of Further Education in London. The longest standing project there is an English and history combined O level course. As the team responsible say in their article in *ELT documents*,106[3] – 'Implicit in the course is the belief that these skills can best be achieved by constantly practising them on subjects of interest to the student and deriving from his other areas of study' . . . 'Where English language is studied on its own there is a danger that the student will lose sight of the reasons for the pursuit of clarity, correct paragraphing, or inventiveness . . .'

The revival of the 'arts' versus 'sciences' debate is also influencing attitudes. A rapidly changing world requires flexible, adaptable minds and an

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[1] Morgan, C T and Deese, J. *How to study*. New York: McGraw-Hill, 1957.

[2] Department of Education and Science. *A language for life*. (Report of the Committee of Inquiry into Reading and the Use of English; Chairman: Sir Alan Bullock) HMSO, 1975.

[3] Herridge, L, Murdoch, F, Taylor, M, Hughes-Davies, E and Rice, J. *Moving towards subject-language integration for a college of further education*. (Compiled by R Ivanic) In: Team teaching in ESP. (ELT documents, 106) The British Council, 1980.

education system firmly based on relevance to future roles. This clearly throws into question the tight divisions between subject specialisms. F D Flower in his book *Language and education*[4] underlines the problems of alienation and isolation and misunderstanding which arise because of an inability to reach across barriers. He says – '. . . it can only be through the development of linguistic skills that the isolation of the individual and the isolation of different groups can be broken down permanently.' His choice of Albert Schweitzer's comment at the beginning of the chapter on communications and human relations is very apt – 'We wander through life together in a semi-darkness in which none of us can distinguish exactly the features of his neighbour' . . . In his Rede lecture of 1959[5], C P Snow deplored the isolation of different groups of specialists. He says – . . . 'two groups . . . have ceased to communicate at all . . .' – there exists – '. . . a gulf of mutual incomprehension'. He saw this inability to understand one another as having more far reaching adverse effects than merely personal and parochial ones. He quite rightly predicted the serious political and economic implications for Britain in world terms.

Until quite recently the trends described above with their subsequent projects have been evident only in schools and further education colleges. Higher education establishments, and in particular universities, have not considered that language improvement or communication studies was their concern and for the most part they still do not. Some institutions may pay lip-service to it and may see it as a cause for regret and a sign of lowering standards rather than as a positively beneficial re-appraisal of what education is about. The traditional attitude is that students of university calibre should already be competent communicators and should not need to pay extra attention to language. This attitude fails to take into account that communication skills are directly related to subject specialisms, are content-specific and therefore develop alongside the subject. It minimises the importance of language and dulls the students' sensitivity to linguistic issues. Also at the high level of specialisation operating in universities, inter-disciplinary integration may be seen as 'inappropriate' and 'academically not respectable'. It is not in line with conventional university thinking. However, service teaching in foreign languages, in particular in English, with its current emphasis on language use, has opened the way for much more co-operation, exposing the potential of language training for general understanding of subject specialisms.

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[4] Flower, F D. *Language and education*. Longmans, 1966.

[5] Snow, C P, *The two cultures and the scientific revolution*. (Rede Lecture, Cambridge 1959).

Teaching communication in engineering departments

Let us now consider what the position of university engineering departments has been on this issue of communication. Their role has in the past been seen as the teaching of the technology of engineering and the encouragement of creative imagination. Only reluctantly have engineering teachers introduced 'peripheral' subjects, such as economics and management into their courses. Communication skills have been ignored except for those skills which are peculiar to the particular engineering discipline, engineering drawing being an obvious example of this. It has been assumed that verbal skills have been absorbed at school and that engineering departments need only maintain the high level already achieved.

Experience suggests that this assumption of competence, if even valid, is no longer so. Employers of graduates complain of the lack of writing skills and technical reports and papers written by professional engineers are often difficult and unpleasant to read and sometimes downright misleading. The professional bodies strive to improve the situation. The Chilver Committee[6], for example, recommended to the Institution of Civil Engineers that 'more attention should be given by universities and polytechnics to improving the art of communication' and the recent DES discussion document entitled *Continuing education*[7] lists 'the development of enhanced communication skills' as an area of useful post-experience training.

Furthermore, in their report *Engineering our future*[8] the Committee of Inquiry into the Engineering Profession support the inclusion of some relevant management subjects in undergraduate engineering courses and distinguish this from later preparation for managerial roles. They state as some of their objectives:

'Engineers (therefore) must expect to find themselves taking part in, and responding to a more participative process of change, through joint discussions of their work and its impact and effects at many levels with workers and their representatives as well as with fellow engineers and

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[6] Institution of Civil Engineers. *Education and training of engineers*. (Chilver Committee report, recommendation VI) ICE, 1976.

[7] Department of Education and Science. *Continuing education: post-experience vocational provision for those in employment*. (A paper for discussion) DES, October 1980.

[8] *Engineering our future*. (Report of the Committee of Inquiry into the Engineering Profession; Chairman: Sir M Finniston) HMSO, 1980.

managers. This wider role will require that engineers develop appropriate skills in the following areas:

> the ability to express and communicate both verbally and in writing;
>
> managing and participating in meetings in which engineering expertise is one of the elements contributing to decisions . . .

. . . Effectiveness for an engineer demands a high level of skill in communication, plus a basic understanding of social affairs and the exercise of judgement and discrimination in non-technical matters . . .'.

The enormous advance in technical competence seems to have been at the cost of the ability of the graduate to express himself. Whether this is due to the increasing specialisation of engineering courses, to the lowering of entrance ability thresholds or to a lack of motivation for 'arts' subjects in 'science' students, C P Snow's two nations, is far from clear. The reason for the lack of ability should and does, concern us, but its solution is necessarily long-term and will not help the present generation of students.

Teaching communication at Newcastle

The Department of Civil Engineering at Newcastle has tried over the past ten years to teach students how to express themselves more efficiently. A course of ten lectures in the writing of technical papers was made available to students in the first year of their three-year course. The effect of this on the students was disappointing. For most there was little or no improvement in the quality of their work while for some the course was actually harmful – students adopted a style which was unnatural for them and tedious in the extreme for the reader.

This course was taught by a succession of lecturers from within the Department of Civil Engineering, each interested in the subject but none of them a trained linguist. The lack of success was, no doubt, in part due to the amateur status of the lecturers, who tended to use the books on technical report writing as prescriptive guides rather than as the pleas for flexibility that they often were. The alternative to 'in-house' teaching was to ask one of the linguists in the University to provide the course, but experience of programmes run by outside specialists tended to argue against this possibility both because of the difficulty of matching the interests of the lecturer with the needs of the students and also the problem of motivating engineering students to attend what they would see as language classes. Language teachers invited to 'do something about the students' language' and working in a vacuum are inevitably plagued by doubts about the relevance of what

they are doing and frustrated by the students' lack of interest. Thus, neither the engineer nor the linguist, working alone can solve the problems satisfactorily.

The presence of considerable numbers of overseas students added to the difficulty of teaching the course and it was the increase in overseas student numbers in 1980 which persuaded the Department of Civil Engineering to seek help. Discussions very quickly showed that the help which was available should not be confined to the overseas students and thus the scope of co-operation was broadened to include native and non-native alike. There are two incidental benefits which derive from treating natives and non-natives alike. The first is that overseas students feel 'more normal' and the second answers the objection sometimes made that unfair advantage is given to the non-native speaker, where clearly more than purely linguistic help is being offered. Johns and Dudley-Evans raise this issue of discrimination in the conclusion to their article in *ELT documents*, 106 entitled *An experiment in team-teaching of overseas postgraduate students of transportation and plant biology*.[9]

The new course at Newcastle

We devised a course which uses lecturers from each department in a team-teaching role for a group of sixty students and which provides a parallel additional course for overseas students alone. This co-operative effort has had the effect of completely changing the original programme, since the combination of the different viewpoints enables totally new insights for both staff and students, the whole being much more than the sum of its parts. The course consists of twenty one-hour sessions divided approximately equally between written and spoken skills, as follows.

Term 1 (Written communication)

Weeks

1 Study methods; general organisation of time, attitudes etc (MJ).

2 Communication and the professional engineer (talk by MJ); complexity of communication and cross-cultural problems (talk by JP).

3 Correctness I: the engineer's viewpoint (comments by MJ and students); the linguist's viewpoint (JP).

[9] Johns, T and Dudley-Evans, A. *An experiment in team-teaching of overseas postgraduate students of transportation and plant biology*. In: Team teaching in ESP. (ELT documents, 106) The British Council, 1980.

4 Correctness II: analysis of samples of various types of written text (JP); comments on texts by MJ and students.

5 The use of diagrams: illustration of how suspension bridges work (MJ); student task – why a tree does not fall down; analysis of student's and JP's versions.

6 Writing on a technical subject for a lay-person: analysis of 'How a civil engineering project is organised' (paper written for JP by MJ); getting to know the reader (mini-tasks in pairs); getting to know what JP knows about reinforced concrete (subject for an assignment).

7 Fact and opinion: the engineering viewpoint with examples (MJ); the linguistic viewpoint with examples (JP).

8 Discussion of assignment on reinforced concrete with analysis of student and JP's versions.

9 Writing on a technical subject for a fellow engineer: model plan for 'Concrete deterioration and repair' (MJ); analysis of professional report from an engineering journal (JP).

10 Information flow (talk by MJ).

For most of the topics each tutor contributes his special viewpoint or expertise and class exercises or discussions are a regular feature. There is ample opportunity for interaction between the engineer and the linguist, between the staff and the students. If we look at session six, there is a general introduction by the engineer concerning the difficulties of conveying technical ideas to the lay person with an example of a paper written by the engineer for the linguist. This is then followed by a group exercise in which students explain to a colleague a topic with which they are familiar but with which their colleague is not. Finally the class question the linguist on her knowledge of reinforced concrete in order to consider the problem from the reader's position. The assignment is then to explain the topic to the linguist using the knowledge they have of her relative ignorance.

Term 2 (Spoken communication)

Weeks

1 Group communication (talk by MJ); analysis of MJ's talk by JP and students; student task in pairs.

2 Group activity with role-play 'Constructing a motorway' (chairmanship I); class activity with same role-play; analysis of speeches.

3 Importance of speech for the engineer (talk by MJ); nature of speech (talk by JP).

4 Group activity on the task of analysing the engineers' induction course (chairmanship II); group spokesmen report to whole class in the presence of the lecturer responsible for the course.

5 Discussion of the assignment from session nine, term 1; written communication reviewed.

6 NASA Moon survival test: the individual's views modified by the group (chairmanship III); analysis of team-work.

7 Analysis of speeches: 'Motivation in the construction industry' (talk by MJ); analysis by JP and students; a party political broadcast analysed by JP and students.

8 Five-minute speeches by students and criticism.

9 Five-minute speeches by students and criticism.

10 Five-minute speeches by students and criticism.

In session six, it was interesting for the students to see how the decisions they had made on their own at the beginning of the lesson about which items were necessary for survival were modified in the group discussions. We observed their difficulty in sustaining points of view, in listening to others, in manipulating from the chair, in having to arrive at what they considered to be premature decisions and so on. In general, this term was attempting to help them face the ordeal of speaking in public, building up their abysmal lack of confidence and teaching them the simple tricks of projecting themselves. It was clear that even the most obvious hints, such as not looking at the floor, not speaking too fast and so on, did not occur to them intuitively. More practice is desperately needed in this field.

Evaluation of the Newcastle course and its future

Although the new course is at present being taught for the first time, the results are encouraging. The presence of more than one tutor in the lectures seems to generate an atmosphere of informality leading to a level of interaction much higher than would normally be the case. In addition, differences

of opinion between linguist and engineer and conflicting views can be discussed immediately in context. The staff can feel confident that the subject is directly relevant to the professional development of the students and that the necessary linguistic depth is available. There has been a marked improvement in the work of the students as compared with previous years. Standards of expression have improved and students are showing more care and interest in their use of language. The most notable improvement has been in the written work of the overseas students.

The need for communication teaching has arisen from the desire of the institutions to teach the facts of technology. This acquisition of facts has been seen as the most important part of engineering education (or of any other discipline for that matter). If we were to restructure engineering courses then specific instruction in communication would become unnecessary. Communication is taken to be and is seen to be a truly integral part of the subject. An awareness of what it means to communicate then permeates all aspects of the subject. The whole of education should be a massive exercise in communicating, after all. And if students are failing to communicate, it may well be that the lecturers they listen to and the authors they read are poor models who fall short of the standard propounded.

There are indications that engineering schools are moving away from the traditional format of lectures and making more use of individual student projects. Greater participation by students inevitably increases the level of sensitivity to and awareness of communicating. We see this course as being the possible beginning of a search for a new style of engineering education which involves the learner much more directly in the process of his own education. Facts are acquired, assessed, communicated or transmitted and then used. These are not four processes, but rather one process of which transmission is an integral part. Only if facts are seen in relation to their purpose and the way in which they are transmitted and only if therefore language considerations become a real part of the study of the subject specialism will the education have any real meaning. Language serves the science and science the language. In the words of J Bronowski[10]

> 'The world which the human mind knows and explores does not survive if it is emptied of thought. And thought does not survive without symbolic concepts. The symbol and the metaphor are as necessary to science as to poetry.'

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[10] Bronowski, Jacob. *Science and human value*. Hutchinson, 1961, p. 46.

THE ESP TEACHER'S ROLE: IMPLICATIONS FOR THE 'KNOWER-CLIENT' RELATIONSHIP

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Readers of the works of the late Charles Curran will recall that he used to express his view of the teacher-learner relationship in any educational setting, by means of an analogy with a reel-to-reel tape recorder. In this relationship, the teacher being characterised as 'full of knowledge' was represented as a full or loaded spool, while the learner, lacking the knowledge possessed by the teacher, was represented by an empty take-up spool. However, the teaching-learning process, Curran pointed out, could not take place as smoothly and easily as a tape winds from left to right, from loaded spool to empty. The problem for the learner, Curran argued, was that he or she perceived the knowledge of the teacher as a threat which aroused emotional resistance to learning; the learner was unconsciously oppressed by an awareness that the teacher knew more than he did. The implications of this basic inequality were presumably that either the tape recorder would not start, or it would not run smoothly, and eventually it would break down. The remedy proposed by Curran was to view the teacher-learner relationship in an entirely new light, a light shed by the client-centred therapy of Carl Rodgers (1965). As is well known, first Rodgers, then Curran applied the therapeutic model of counsellor-client relationship to learning situations.

Curran argued that if the emotional state of the learner or client could be understood by the teacher or knower by an act of empathy and if this understanding could be conveyed to the learner in clarificatory language borrowed from the psychotherapist; and if, in addition, the learner could share the learning experience with others, then he could overcome his frustration and confusion and become receptive to learning. The tape recorder would, as it were, jerk into life.

Despite my respect for Curran's ideas, I have never much cared for the tape recorder analogy. It suggests that the teaching-learning process, when it is successful, can be likened to the smooth transmission of a message from teacher to learner, from knower to client with no sense of the reciprocal negotiation which characterises effective communication. It evokes a deficit curriculum in which, it would appear, the learner has nothing to bring to the learning encounter beyond his unspoken resistance to the unfair balance of knowledge it represents. But what, it may be asked, has all this to do with the ESP teacher, and his or her role? It may be that exploring the limitations of the tape recorder analogy in the rather specialised kind of teacher-learning situation that characterises ESP may prove enlightening.

Let us take, for example, Curran's basic insight that success or failure in learning may be significantly determined by how the learner perceives his or her state of knowledge-deprivation *vis-à-vis* the teacher whom he sees as replete with knowledge. How does this apply to ESP? Curran applied his counselling-learning model to the (learning) of both content subjects and of second languages. He argued that it was equally valid for both these domains, since what matters is not the content of learning but the quality of the teaching-learning relationship. In other words, it is the underlying psychological dynamic of this relationship that determines the success or failure of the outcome rather than the way in which the content of learning is organised. As far as the acquisition of a second language is concerned, Curran rejected the claims of the external syllabus selected and sequenced in any of the ways which foreign language teachers have traditionally felt to be helpful to learners.

The curriculum content, then, would be quite simply whatever learners chose to make it in a free conversational mode. Thus an individual learner would select a topic and, with a little encouragement and practical help with translation from his teacher-turned-counsellor, would proceed to engage his fellow learners in conversation; and so the curriculum content would grow organically out of the interaction of the group.

There is little indication in the literature that it matters a fig whether the thematic content of learning deals with ships, or shoes, or sealing-wax. What matters is the growing self-reliance of the second-language learner as he moves from total mother-tongue dependence on the counsellor to self-reliance in the target language. What counts for Curran, is the hazardous process of transition from a mother-tongue self to a second-language self, a process which, by its very nature, is bound to expose the learner to a sense of anxiety, insecurity and frustration as he progressively extends the comfortable limits of the familiar mother-tongue world, and moves through a no-man's-land of interlanguage towards fluency in a second language. It is a vision which, as second-language learners, we can intuitively recognise and which, with its pioneering emphasis on the primary of learning strategies over syllabus content, can still offer us some valuable insights today.

And yet Curran's view of the teaching-learning relationship seems oddly uni-dimensional when we come to consider the complexity of the ESP situation. I am not referring to the fact that Curran finds no place for the acquisition of these information-processing skills of reading and listening which are essential to those students who need to acquire study skills in English. That is merely a reflection of the general lack of concern for curriculum content to which I have already referred. It is (rather) that Curran's model fails to take account of the fact that the ESP situation presents us with a uniquely complex teacher-learner relationship.

The ESP teacher, for the most part, does not in any straightforward sense, conform to the image of a 'knower'. It is true that he or she possesses specialist knowledge of the target language which the learner is interested in acquiring; he or she may be fortunate enough to possess some familiarity with the subject matter relevant to the learner's area of study or occupation. It is more than likely, however, and this will depend on whether language instruction precedes, or runs parallel to, academic study, that the learner will possess far more knowledge in depth in his or her own specialist field than the teacher does.

It is thus at least as likely that the teacher will feel insecure and threatened in an ESP situation as that the learner will experience these emotions. The ESP teacher has an additional reason for feeling insecure which relates to his or her social status and standing in educational circles. For what kind of an expert is he? He lacks the academic standing of the subject specialist; he is a language instructor, quite frequently of an inexperienced kind, who is called upon to carry out a delicate and highly specialised task. Furthermore, he will be accountable for his results to the subject specialist who enjoys the status he does not possess.

The ESP teacher typically leads an uneasy existence housed in a curriculum unit which exists on the margin of the academic world. It is not a situation which is conducive to a strong sense of professional identity.

Peter Strevens writes:

> 'Certain recent pedagogical developments . . . have had the effect of placing upon teachers new responsibilities which they did not previously bear . . . In particular, the analysis of learners' needs, the design (or at least the adaptation or modification) of syllabuses, the writing of teaching materials, even the development of tests, now often fall upon the teachers with little experience – who may be "instructors" in the sense outlined earlier.'
>
> (Strevens 1981, p.7)

Much of his new burden Strevens writes, can be laid at the door of ESP. Faced with this predicament, a variety of options are open to the ESP teacher. The first of these is to abdicate as a specialist language teacher – and to give way to a subject teacher appropriately trained if such training can be found in the specific skills of language teaching. The practical difficulties of adopting this solution are considerable. It has the grave disadvantage of closing an avenue of employment for language teachers though, in certain circumstances, this could be compensated for by opening an alternative avenue of employment for subject teachers.

The desirability of pursuing this course of action would thus depend to a considerable extent on the factors which constrain any given language teaching situation. In any event it is likely that the training offered to subject teacher specialists anxious to convert to language teachers would have to take in areas of basic language teaching skills as well as relevant linguistic information which the subject teacher would ordinarily not possess, as a result of any previous teacher training. Other arguments of a more philosophical nature could be adduced for and against this proposal, but time does not permit us to explore them here.

Alternatively, the language specialist could seek to establish an alliance with a subject specialist in a team-teaching or collaborative approach to the problem. The rationale for a collaborative approach has been well set out by Tim Johns and Dudley-Evans (see *ELT documents*, 106, 1980) in their paper *An experiment in team-teaching of postgraduate students of transportation and plant biology*.

> 'The pedagogical problems arising from the perception, reinforced by discussion with subject teachers and with students (particularly in the one-to-one consultations which form an essential component of the Unit's work) that an overseas student's failure to keep pace with his course of the subject or with his research is rarely attributable to 'knowledge of the subject' or 'knowledge of the language' alone; most often, the factors are inextricably intertwined. If their work is separate, it is difficult for the subject teacher, and even more so for the language teacher, to take account of that intertwining. In the triangle of which the three angles are the student, the subject teacher and the language teacher, each needs a certain type of assistance and feedback from the other two.'
> (pp. 7, 8)

This is a clear statement of the dilemma which faces the ESP teacher. However, the various accounts of team-teaching collected together in the same edition of *ELT documents*, while they do report some encouraging success stories, also tend to suggest the practical limitations of language teacher-subject-teacher collaboration.

The authors of these accounts are conspicuously cautious in claiming that the team-teaching solution can be applied across the board. For one thing, such collaboration is expensive in terms of man hours; for another, it depends on goodwill, on the 'chemistry of human interaction' as one writer puts it (Chamberlain, 1980). Just how delicate the development of an effective working relationship between subject and language teachers can be is well summed up by another writer:

'But there are obvious massive difficulties in the way of establishing real team-teaching between disciplines as dissimilar as English and biochemistry or mechanical engineering, among them being near total mutual incomprehension of purpose, subject matter, and pedagogical approach, together with conflicting schedules, different commitments to research and problems of basic attitude.'

(Adams-Smith, 1980)

It is true that the same writer goes on to [illegible]n a degree of success for the experiment she describes. Some mutual education, some mutual modification of entrenched attitudes occur. It is clear that when team-teaching or other more limited forms of co-operation are possible, then the student stands to gain a great deal.

What I am going to propose, however, starts from the assumption that such collaborative approaches are not always a practical possibility. In short, I would like to suggest that, whether we like it or not, we are saddled with a situation in which the main protagonists are the student and the language teacher, with the subject teacher not so much absent as existing on the margin of the relationship, a powerful, even threatening, presence which makes itself felt indirectly, the ultimate judge of the success or otherwise achieved by the language teacher. So there we have it, the ESP teacher and the student uncomprehending eyeball to eyeball with the subject teacher breathing irritably in the background. What role, what attitude, what methodology is available to the ESP teacher who finds himself cornered in this way?

Let us consider the case of Marta, a Latin American postgraduate student of political science at the University of Essex. Marta has been having considerable difficulty with her written assignments, so much so that her supervisor was beginning to believe that she would not succeed in completing the course. Having met Marta socially, I was interested in discovering where her problem seemed to lie. Her Latin American flatmate, a fluent English speaker had informed me that Marta was unwilling to speak English informally at home, while Marta confessed that she was quite unable to take part in seminars in the medium of English. She admitted that she was quite incapacitated when called upon to perform in public.

After a certain amount of negotiation, Marta agreed to talk to me while I tape-recorded her conversation. We began in Spanish, and agreed that we could relapse into Spanish at any point when speaking in English promised to lead us into difficulties. As I wanted to play our conversation back to Marta, I did not record those sections of our conversation which took place in Spanish. As a preliminary to our conversation, we listened to a tape of

the Yugoslav marxist dissident, Milovan Djilas, developing a critique of orthodox marxist ideas. The conversation which now follows was therefore based on the topic of Marxism; a topic of which, as it happens, I am far from being master. It was thus possible for Marta to attempt to explain some of the key ideas to me: for transcript of conversation see Appendix.

I do not know what the reader will make of this conversation but I would like to draw attention to one or two of its aspects. The first point is that the dominant role was played throughout by Marta. It was she rather than myself who knew what she was talking about. She wanted to put me straight about Marxism. It turned out that this task – putting me straight about Marxism – was more rhetorically demanding than she had anticipated. 'It is easier *that you think', she begins confidently. 'It is not so easy *that you say' she concludes. Had we communicated? And if so, how effectively? There are limits, of course, to what can be communicated about complex ideas in the course of a brief conversation. It is undeniable, however, that in trying to get her point across Marta perforce explored a wide range of rhetorical functions (Henry Widdowson would have been delighted). She has explained, defined, attributed cause and consequence; she has drawn distinctions, established relationships; she has referred to authorities and advanced theoretical claims; and warned me not to draw superficial conclusions. If there has been a failure of communication here it can hardly be attributed to Marta. My own contribution has been rather less impressive; some heavy-handed correction at the linguistic level, occasionally quite inappropriate or even wrong, as when Marta rightly talks about 'an equal division of production' and I question whether she means 'unequal'. By the end of the dialogue Marta plainly finds my blunt 'informed layman' approach exasperating, although she is too polite to say so. I could have been a more effective 'facilitator', less wilfully obtuse. And yet, I would argue, a transaction has occurred – 'a trade-off', as Ken James put it in discussion, 'between ignorance and knowledge' involving a reversal of teacher-learner roles.

It is worth considering the assumptions upon which this transaction was based. Marta saw my ignorance of Marxism as a challenge to her communicative abilities. She wanted to convey to me some of the power of a Marxian analysis. She sincerely believed that I was genuine in my ignorance, not feigning. Searle's 'sincerity conditions' for a speech act apply. In short, she was a motivated speaker, and the conditions for our communication were, in that sense, authentic. Furthermore, the balance of knowledge lay with Marta rather than myself.

One is tempted to formulate a rule: wherever communication of a genuine kind is taking place, attention to the purely linguistic level of communication

will be perceived as trivial unless it related to the process of interpretation and understanding of meaning. The 'language teacher' role one suspects will recede in proportion to the emergence of significant content in communication.

The basis for our communication was negotiative and interactive, however. It was largely because I asked leading questions that Marta was ready to develop her ideas. Perhaps here, then, we have an indication of the basis of that methodology of which Tony Crocker spoke in his introductory address:

1 A trade-off between ignorance and knowledge involving a reversal of traditional teacher-learner roles.

2 An acknowledgment of the learner's contribution.

3 Authenticity of communication.

4 Interaction.

5 Negotiation.

The limitations of such a methodology, I would suggest, will not be determined by the confines of technical and scientific discourse but by the willingness of both parties to communicate at the limit of their respective areas of ignorance and knowledge.

APPENDIX

Conversation with Marta

Marta: I am interested in reading this book because it explains the Marxist thinking (Spanish).

PE: Is it a difficult book? You said . . .?

Marta: No, it isn't.

PE: It isn't. (Spanish)

Marta: I am studying theory by it, because it explains the system of earning within a capitalist system.

PE: It sounds very complicated.

Marta: No, it is not very complicated.

PE: No, that's fine (laughter) Esta muy bien. Why not?

Marta: Because it is easier *that you think.

PE: Ah hah? You say that it's easy? Then explain it to me (Spanish). One minute, let's record that OK?

Marta: Marx says that all material things have a value (PE: a value) in use, and a value in . . . production.

PE: Fine. I think I understand. I **think** I understand – Can you tell me some more? (Spanish) Repeat that, would you mind?

Marta: Marx says that the most important thing in political economy is the production . . . (PE: is production) is production.

PE: Yeh?

Marta: And . . .

PE: What exactly does production consist in?

Marta: Production is all the things that the man (PE: that man) *can't make in order to . . .

PE: That man can . . . can or can't?

Marta: Can (PE: Can? I understand 'can't'. OK).

Marta: In order to *satisfaction of his needs (PE: in order to satisfy his needs, OK).

PE: You said there is a distinction – a value of use and a value of production. What is the value of use? And why is it different from the value of production?

Marta: The value of use (Spanish). The value of use is the satisfaction that a thing produces in the satisfaction of a need.

PE: Yes. Can you give me an example?

Marta: For example, if you have a table, if the table is *util (PE: useful) useful for you (PE: yes), the value of use is the satisfaction of the need, is the satisfaction of . . . (PE: the need you have of the table) the table.

PE: Is that correct? For example, you have your meals on it?

Marta: Uh huh.

PE: And that is different from the value of production?

Marta: Of production, The value is the money that you *needs for taking the table (PE: to buy it? or to obtain it?), or to make it? (PE: Ah to make it, yes).

PE: Is it to buy it or to make it?

Marta: To make it.

PE: So, yeh (Spanish). Why, then, is this an important distinction – the distinction between production and use? What is the implication of that distinction?

Marta: The implication you can see in the result of some of the rules of political economy.

PE: You can see the result in the rules of political economy. (Marta: yes). For example?

Marta: UM, for example *from political economy is important the value of production. Em . . . this is direct relation, it is direct *relationated . . . (PE: No). (Spanish) It's directly related. It's the composition of capital bank . . . (PE: of what?). Organic capital (PE: organic capital) directly *relationed, related with organic capital.

PE: I'm afraid I don't understand. What is organic capital? Can you explain that to me? (Marta: organic capital?) You see I'm not a Marxist. I've never studied Marxism so you have to explain to me.

Marta: Organic capital . . . is *composeded (PE: is composed) *for (PE: of) is composed of the work of the man (PE: the work of man), the capital that you need for *obtain goods (PE: for obtaining) obtaining goods, and the goods that can be make (PE: made) *for men?

PE: I don't know. Is it the goods that can be made by men?

Marta: By men (PE: By men).

PE: So that's the organic . . .?

Marta: Composition of capital (PE: uh huh) then you can with work and . . . er . . . capital, you can obtain goods . . . um . . . Marx refer refers to work, he refers to labour, to division of labour in the *work.

PE: Yes. To the division of labour. Yes, I recognise that this is the specialisation idea, is it? Specialisation?

Marta: Yes, it is the specialisation of labour in the *work. Necessary — (PE: necessary) division of labour.

PE: And the consequences of that are what? In human, or in political terms, I mean?

Marta: The Marxists thought . . . eh . . . it is useful, useful . . . (PE: youthful? 'Youthful' quiere decir algo vinculado can la juventud, youth). (Laughter) Ah no, no. Algo útil useful, (PE: useful) for demonstrate (PE: for demonstrating) how capital system (PE: The capital system). The capitalist system is based in human exploitation (PE: on human exploitation) on human exploitation.

PE: But if you have division of labour, it is possible not to have human exploitation?

Marta: Precisely, it's division of labour (PE: yuh) is . . . la causa? (PE: the cause) the cause of human exploitation.

PE: Yes.

Marta: Because . . . all the works in the world (PE: En espanol?) todos les trabajos del mundo (PE: all the work. Only in English, sólo así). All the work (PE: Si, no tienes plural) all the work in the world is not equal. . . They're a lot of (PE: different tasks?) different tasks.

PE: But can Marx change that? I mean does his theory suggest how we can change that?

Marta: Yes, of course.

PE: It does, yes. So the cause of exploitation is the division of labour?

Marta: One of these. (PE: one of them).

PE: In a modern Marxist system, is there division of labour?

Marta: Yes, of course.

PE: Well then there is human exploitation: Is that correct – the implication? In a modern Marxist system there is exploitation?

Marta: There is exploitation, but . . . I can say that it is less *that (PE: in a capital system?) any other system.

PE: OK why, why is that?

Marta: Because Marx says, proposes (PE: proposes) unequal (PE: desigual? Tu quieres decir igual . . . an equal) an equal division of production.

PE: An equal division of production? That means the value of production is the same? It doesn't depend on the task. Is that correct? If you produce a table it's the same as if you produce a car or a book? Is that correct?

Marta: (laugh.) Yes it is. *The Marxist theory is not so easy. It is not easy *that you say.

THE CONTRIBUTION OF DISCOURSE ANALYSTS TO ESP AND OF ESP PRACTITIONERS TO DISCOURSE ANALYSIS

Pauline Robinson, University of Reading

ESP and discourse analysis have been related from the beginning, both being developments within the communicative revolution in language teaching and the study of language. This relationship seems to be acknowledged by the proposal to establish a computerised bibliography of ESP and discourse analysis at Birmingham University. Probably ESP pre-dates discourse analysis, and in the early days of ESP the teacher-cum-course designer would have used some method of stylistic analysis (largely confined to the sentence level and below) to assist the selection and production of teaching materials. Nowadays, the many 'war stories and romances'[1] of ESP course design take it for granted that authentic texts are used and that some sort of discourse analysis is applied to these texts, although precise details are not usually given.

A major problem of course for anyone approaching discourse analysis is that of terminology. One useful by-product of the Birmingham bibliography project would be the provision of some terminological clarification. In particular, the problems centre on the terms **function** and **rhetoric**. By the cover term **discourse analysis** I understand the study of stretches of language, whether spoken or written, ie pieces of language or text which are longer (often much longer) than a single sentence. Thus the pedagogical value of discourse analysis: it should help students to process, utter and write more than single, text-book bound, sentences.

This is of obvious and particular relevance to ESP, where students are not learning language just for the sake of it, but are looking beyond the text-book to actual job or study situations, situations in which they will both encounter real discourse and have to create it.

In the last decade a number of interesting materials have been produced under the aegis of ESP and employing some concept of discourse analysis. In fact, however, these materials do not exemplify any features specific to any ESP discipline: they exemplify English in general. Much has been said and written about the discourse of science, for example, but what has in fact been analysed is general academic discourse.

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[1] See Bowers, Roger. *War stories and romances: interchanging experience in ELT.* In: Projects in materials design. (ELT documents special) The British Council, 1980.

In this short paper I would like to explore the relationship between ESP and discourse analysis, looking first at what has been contributed to ESP by various analysts, course designers and materials writers. How far have they helped ESP students with their discourse needs and how far has this extended our knowledge both of ESP and of discourse analysis? In order to answer this, I will differentiate four approaches to discourse analysis and I will present them in what I think is historical order, although this may merely be the order in which I came to know about them. Secondly I will make some brief suggestions regarding the possible future contribution of the ordinary ESP classroom teacher-cum-materials writer.

The first approach is that exemplified by the *English in focus* series, and continued in the *Reading and thinking* series. Here we are basically concerned with the grammar of text, particularly with such devices of cohesion as reference items and connectives and, in a not necessarily cohesive way, with vocabulary. Some attention is paid to rhetorical functions[2] but only a few are selected for study.

The *English in focus* series has been very important, indeed influential. It popularised what we can now see as an early approach to discourse analysis, and made more widespread the communicative teaching of reading and writing. If we teachers now do on-the-spot discourse analysis, we often do it in an *English in focus* way – we look for passages with explicit connectives, clear patterns of reference and so on. But although the *English in focus* series appeared under the aegis of ESP, no one would now say that the books are really specific to any subject. The *Reading and thinking* editors, in fact, explain that their material is not subject specific. These books deal with academic reading and writing in general and the same discourse features are discussed on each book. It doesn't matter, of course, that what is being taught is part of EGP, or EAP, rather than any particular ESP discipline. It is yet another instance of ESP being the inspiration for advances in ELT in general.

What is more important for us to consider, however, is that although both series of textbooks have successfully taken students beyond the sentence level in reading and writing, they have not taken them very far beyond it. The texts studied are short and the rhetorical functions few in number. Moreover we are given little idea of how these functions combine to make longer texts. Students may now be able to cope with good short paragraphs, but their work may still lack any larger structuring.

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[2] A term used by the Trimbles, see below.

An entirely different approach is that pioneered by Sinclair and Coulthard and to which Sinclair is referring in his recent article in *Applied linguistics*[3]. A key word is **interaction** and there are essentially two participants in the discourse. The analysis is based on the study of spoken discourse interaction and the emphasis is on the management (or negotiation) of the discourse by the two participants. In his article, however, Sinclair suggests that the approach can be applied to written language. He aims to show the ESP applications, but basically his suggestions relate to communicative methodology in general.

An aspect of the Sinclair and Coulthard approach to discourse analysis is its formulation of a structural hierarchy (similar to that for grammatical elements within the systemic model), with such levels as that of move, act, exchange, etc. Some ESP practitioners have tried to interpret academic lectures in terms of this hierarchy – for example Straker Cook[4]. He shows how a lecture can in fact very often be viewed as a two-way interaction and makes a convincing adaptation of the Sinclair and Coulthard model for his purposes. He directs students' attention both to details in a lecture (eg at the level of act) and to the way in which the different components of the lecture slot into the hierarchy. How far, however, do students of agriculture or engineering need to be able to break down a lecture into its interactive communicative constituents? The Sinclair and Coulthard approach, I feel, is more of a tool for the teacher than the student, a point which Sinclair himself makes.

The people who have done the most specific work within both ESP and discourse analysis are Louis Trimble and Mary Todd Trimble together with, variously, Lackstrom, Selinker and Vroman. Now, the Trimbles are working within EST and they say, for example, 'It is our contention that in EST the conceptual paragraph[5] is the basic unit of discourse'[6] but this is not to say that what they have discovered doesn't belong to general English. Regarding

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[3] Sinclair, T. *Some implications of discourse analysis for ESP methodology*. Applied linguistics, 1 (3), Autumn 1980.

[4] Straker Cook, R H. *A communicative approach to the analysis of extended monologue discourse and its relevance to the development of teaching materials for ESP*. (MLitt thesis, University of Edinburgh, 1975).

[5] conceptual paragraph: one conceptual paragraph may consist of several 'physical paragraphs' – marked in the traditional way by spacing and indentation. Less often, one physical paragraph may contain more than conceptual paragraph.

[6] Lackstrom, J E, Selinker, L and Trimble, L. *Technical rhetorical principles and grammatical choice*. English teaching forum, XI (3), 1973, *and* TESOL quarterly, 7 (2), 1973.

technical manuals Mary Todd Trimbles writes that 'The fact that manuals use a very specialised form of language became obvious early in our work'[7], but she then suggests that the difference in rhetorical, grammatical and lexical features is one of degree rather than kind.

One of the most attractive parts of the Trimbles' work is their Rhetorical Process Chart[8]. This is in four levels, the constituents of each being realised by elements of the level below. Level A gives us the objectives of the total discourse, for example 'Detailing an experiment' or 'Presenting new hypotheses and theories'. Level B gives us 'the general rhetorical functions employed to develop the objectives of level A', for example 'stating purpose', 'reporting past research', level C gives us specific rhetorical functions, such as definition and classification, and level D gives us rhetorical techniques, for example time and space order, causality, comparison.

This hierarchical chart has obvious similarities with the Sinclair and Coulthard model and one could to some extent match the constituents of each. However, the emphasis of the approaches is different. Sinclair and Coulthard focus on the structure of the interaction and how it is managed; the Trimbles on the kinds of meanings and messages that are conveyed. The Sinclair and Coulthard model is much more detailed and much more completely worked out – but this makes it consuming of time and mental energy to operate. The Rhetorical Process Chart is easily understood – although, tantalisingly, the Trimbles only give examples of what can be found in a sample text. They do not – cannot – account for everything. At least, however, they provide what is lacking in the Widdowson-inspired work: a sense of how things interrelate and a feeling for the total message of a discourse. How often we deal in snippets of text, not whole messages!

This brings us now to the final approach to discourse analysis, one which is clearly labelled and set out for us by Teun van Dijk[9]. He makes a distinction between macrostructures and superstructures, a macrostructure being the global meaning of a whole text, ie the particular message of that individual text. Superstructures define not content but form and are more abstract in nature. Superstructures give us the typical structurings of different genres. Van Dijk mentions stories, and argumentative structures in a proof. We

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[7] Trimble, L and Todd Trimble, R M. *The development of EFL materials for occupational English*. In: English for Specific Purposes: an international seminar. (Proceedings of a seminar held in Bogota, Colombia) The British Council, 1977.

[8] There are several versions of this, the most recent being in Selinker *et al. Rhetorical function shifts in EST discourse*. TESOL quarterly, 12 (3), 1978.

[9] Van Dijk, T. *Discourse studies and education*. Applied linguistics, 2 (1), Spring 1981.

could add the detailing of an experiment, etc – the level A objectives of Trimble *et al.*

Someone who has actually produced materials which aim to teach what appears to me to be the concept of superstructure is E O Winter[10]. His core thesis is that any text can be analysed in terms of one of four permutations of Situation, Problem, Solution, Evaluation and he demonstrates this convincingly with academic texts and passages of journalism. Winter's materials were produced for (mainly) native speaker science students on communication skills courses, but they would seem to have obvious relevance for ESP work.

Van Dijk writes that 'We ignore at present the question whether all discourse types have such a superstructure[11]. This suggests to me a fruitful area of study and one to which ESP practitioners could contribute. Do our students' different subjects have different superstructures? We often operate on the unspoken assumption that all subjects have different superstructures – this is one of the bases of ESP. Yet, as mentioned above, many so-called ESP textbooks apply across the board of a great range of subjects.

A number of stylistic – and now discourse analysis – studies exist of different disciplines (for example economics and business in the new *ESP journal*, 1:1) but what we need are comparative analyses. I am sure that there are parallels across disciplines – and the ESP teacher could capitalise on these. But we need to know, not just guess. Thus I suggest that research is required to try to answer the following questions:

1 What are the different superstructures for different subjects?

2 Are there parallels across subjects? (Are there scientific universals?)

3 How far are such superstructures language and culture specific?

4 How can we teach people the superstructures of ESP disciplines (if we have found them) and of English language academic discourse?

The teacher-cum-course designer has contact with students of many different departments and is often dealing with authentic texts from a wide range of disciplines. Such a person is the best placed to do some empirical research into the vital question of whether there are discourse structures specific to ESP disciplines, or whether, after all, ESP is in fact communicative EGP.

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[10] See Winter, E O. *Fundamentals of information structure*. Linguistics Group, School of Humanities, Hatfield Polytechnic, 1976.

[11] Van Dijk, T. *Op cit*, section 2:6.

SELF-DIRECTED LEARNING SYSTEMS AND THE ROLE OF THE ESP TEACHER

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Introduction

This paper is a partial response to the observation that traditional taught language courses are either impractical or ineffective for many overseas postgraduates at the University of Southampton. There seem to be five main reasons for this, most of which are presumably common to other institutions, to a greater or lesser extent.

Firstly, it has always been found extremely difficult to timetable English classes effectively during term-time. With classes formed according to the level of students it was found that, although great effort was made to accommodate the maximum possible number of students, there were always some unfortunate learners with very considerable language problems who were only free at times set aside for advanced classes, and vice-versa. With classes formed according to language skills, it was found that some students needing practice in written English could only come to a language laboratory class, and so on. Some progress was made by setting up courses for broad groupings of subjects (English for engineers, English for social scientists, etc) but even here there was only limited success, and there were always some students who, because of the options they had chosen on their post-graduate course, were not free at the times set aside for English classes.

Even if all the difficulties of timetabling could be resolved, there remains a second problem -- that of maintaining regular attendance at classes. At the beginning of the academic year some English classes are often very large and rather incohesive. Within a few weeks these large groups will have become much smaller, but diagnostic test scores suggest that those who are discouraged from coming to classes are often the ones who most need to attend regularly. The size of classes is, of course, only one factor; more important is the pressure of academic work, particularly for students following one-year MSc courses. Although most overseas postgraduates work extremely hard (Sivaramakrishnan *et al*, 1979), there are obviously limits to how much they can do, and English classes often seem to be 'competing' with work in the students' main subject of study. This problem is aggravated by the fact that attendance at English classes is usually entirely voluntary. The reasons for irregular attendance may be extremely good ones, but irregular attendance nevertheless gives rise to the feeling that little progress is being made, and this apparent lack of achievement in turn frequently leads to greater irregularity and eventual abandonment of classes.

Thirdly, whatever system of grouping is adopted, English classes seem to consist of very heterogeneous groups of students. They have many different native languages and often have very diverse foreign language learning backgrounds, and consequently different assumptions about the language learning process and the student-teacher relationship. They frequently have very different language needs, according to their level of achievement, according to the language skills they wish to focus on, the particular language functions they consider to be most important to them and the very specific subject matter with which they are concerned.

This leads on to a fourth problem – that of pacing. There are, of course, a number of factors governing the pace at which a student can learn. However, these do not seem to limit the actual ability to learn to quite the same extent. Indeed, it has been claimed that time is the most important variable in any model of learning and that weaker students may be capable of reaching the goals set provided they are given sufficient time to do so (Carroll, 1965; Skehan, 1980). Among such heterogeneous groups it is very difficult to allow for the variety of pacing that would be necessary for all the students to learn effectively.

Finally, a considerable number of overseas students adopt a very passive attitude towards language learning and are reluctant to assume any kind of pedagogical responsibility. They seem to imagine that provided they attend a course and the teacher does his job properly, learning will somehow inevitably take place (Henner-Stanchina and Riley, 1978). It is questionable whether this is a valid approach to any form of learning, but it is a singularly inappropriate attitude to adopt towards language learning, which involves among other things internalising a system and learning to be creative in language use. Moreover, if language learning is to be seen as part of the general educational process, students should be encouraged to work independently to a certain extent and to assume a degree of responsibility for their learning, as this is likely to be required of them in their main subjects. Only in this way will their language learning help them to derive maximum benefit from their studies in the United Kingdom. Although it is possible to encourage this active participation in the learning process in ordinary language classes, I feel that this is not the ideal, and that there are better ways of helping students to assume responsibility for their learning.

Self-directed learning: a partial solution

A number of measures have been introduced to help overcome these problems, and further developments are planned for the future. The set-up towards which we are moving at Southampton consists of four main components:

1 An extended pre-sessional English language course, with options to attend for either four or eight weeks. The advantage of this is that students are able to devote themselves entirely to improving their English during this period of the year, with only minimal interference from the demands of their main subject. Moreover, the little research that has been done on the subject suggests that motivation is more easily maintained at a high level during an intensive course than during a course spaced out over a long period of time, with only very few contact hours each week. The drawback is the cost to the student, as temporary staff have to be employed, and also the fact that not all students are free to come to Britain, leaving their jobs and sometimes families, two months before their main courses are due to start.

2 More English classes forming an integral part of the postgraduate courses in other departments. Courses have already been run in conjunction with the Departments of Irrigation Engineering (MSc), Maritime Law (LLM) and Operational Research (MSc), and they have met with varying degrees of success. The most successful courses seem to be those where there is the most contact and co-operation with the departments. It is hoped that the number of courses offered will be increased, although obviously this kind of development is only practicable where there is a significant number of overseas students on a postgraduate course.

3 More classes at 5 pm. Classes in academic writing have already been offered at 5 pm, when everybody is theoretically free, and they have been extremely well attended. It is proposed to extend the range of classes at this time to include the other language skills.

4 A self-directed learning (SDL) component. Although we have yet to experiment with this on the pre-sessional course, it is something which has formed a very valuable part of intensive courses elsewhere (Geddes and McAlpin, 1978). For the last two years we have been experimenting with a SDL component during the academic year. Whilst some students have opted only for this, the majority so far have attended some classes as well. Thus, although there are some students who can be happily accommodated solely within an SDL framework, there will always be some for whom it is not a total solution, and SDL should therefore only be seen as one component of an ESP programme, although I believe it is an extremely important component.

A Multiplicity of terms

There are several terms that have been used to describe different aspects of SDL, and before proceeding any further it seems sensible to define the terms I am using.

There seems to be a large measure of agreement about the use of the term **self-directed learning**. It describes a learning process where the learner takes charge of his own learning and assumes the responsibility for all the decisions concerning all the different aspects of the learning process, including setting the objectives, determining the content and methods of learning and even evaluating how well learning has taken place, as well as the practical organisation, deciding on the rhythm, time and place (Dickinson, 1976, 1979; Holec, 1980). This does not preclude the possibility of consulting with and seeking advice from a language teacher, which many learners consider to be an indispensable part of the process, but the teacher only advises, leaving the learner with the ultimate responsibility for all the decisions.

Autonomy is a term which has been used in a number of different ways, but for the purposes of this paper I intend to adopt Holec's (1980) definition of autonomy as 'the ability to take charge of one's own learning'. It is thus a potential capacity or ability rather than actual behaviour. Although Holec does not mention this, one can presumably talk of degrees of autonomy, some learners being more 'autonomous' than others.

One term which is very useful, and which is now becoming very widespread in the literature is **self-access materials**. I take this to mean materials which are suitable for self-directed work and which are readily available for the learner to choose from, presumably in some kind of resource room. They would not normally be issued by or directly controlled by the teacher, although the teacher might well make recommendations as to the kind of materials likely to be found useful.

Finally, we come to the potentially very useful, but in practice very confusing term **individualisation** or the related form **individualised**, which can qualify 'teaching', 'instruction', 'learning', 'guidance', 'help', etc. Although it has been used to describe very diverse approaches to learning it seems to me that the definition suggested by Chaix *et al* is by far the most useful. Thus, for the purposes of this paper, we shall take individualisation to be 'a learning process which (*in* regards goals, content, methodology and pacing) is adapted to a particular individual, taking this individual's characteristics into consideration' (Chaix *et al*, 1978). This ties in very closely with the 'specific purposes' of ESP (cf Robinson, 1980), although it goes further in that it considers characteristics of the learner himself as well as his target language. Individualised learning does not necessarily imply self-directed learning. Indeed, it can be pursued in a thoroughly authoritarian framework (Trim, 1976). However, it is my belief that most effective learning programmes will contain a measure both of individualisation and of SDL.

Some implications of SDL

The main implication for the learner has already been hinted at. Provided he is willing to assume responsibility and that he possesses or is capable of developing a degree of autonomy, then he will take charge of the learning process, viewing the teacher as a helper or consultant. Moreover, as far as the subject matter is concerned, 'the learner is no longer faced with an 'independent' reality that escapes him, to which he cannot but give way, but with a reality which he himself constructs and dominates' (Holec, 1980).

As far as institutions are concerned, there has to be more flexibility in terms of what is expected from teachers and learners. In addition, institutions need to provide the facilities necessary for effective SDL, including resource rooms containing self-access materials, with a straightforward reference system, open for as many hours per week as possible, and with teachers on hand to give advice at certain times of the day.

The implications for the teacher and the role of the ESP teacher in a programme with a SDL component will be examined in the next section.

The role of the ESP teacher

Of course, one of the functions of the ESP teacher will always be to teach ESP to groups of students. Consequently, he will probably need to develop certain areas of expertise and to familiarise himself with some other subjects. It will be recognised, however, that such classes are most useful when the students have a great deal in common, in terms either of their subject of study or of the particular language skill they wish to develop. Where the students have no such similar interests, self-directed learning might be a more useful approach.

Even when teaching groups of students it is possible and, I believe, helpful, to encourage the students to develop a measure of autonomy. There are a number of activities from which the teacher can withdraw. He can encourage the use of reference works rather than constant reference to himself. He can help students to appreciate the usefulness of pair and group work, as well as individual work. In short, he can help students to develop their own personal strategies for effective language learning.

The teacher also has an extremely important role to play in the SDL component, as few learners have the necessary confidence or knowledge, at least initially, to take control of the learning process entirely unaided. At the University of Southampton we offer 'individualised help' or 'individualised

guidance' to students and normally allow about eight hours each week for these consultations. Students typically see a teacher for twenty minutes once a fortnight, although a few come every week, and some only seem to require such assistance very intermittently. This started as a way of helping students to prepare for writing their theses or dissertations, but it has developed to include all kinds of language work.

Within the framework described, and I suspect this would apply to many or even most SDL systems, the teacher's role is one of support and reference. His first task, in many cases, is to convince students that this is not a form of personal tuition, and that he is not there to solve all their language problems for them. He will then try to help students to define their objectives, to diagnose their own problems (with the help of a diagnostic test) and to write their own prescription. Naturally, some students require far more help than others, and some insist on the teacher playing a fairly active role in this process.

In the initial stages a lot of time can be spent in preparing learners for SDL. Riley (1976) distinguishes between psychological and methodological preparation, both of which are extremely important. Psychological preparation includes persuasion (explaining the advances of SDL) and support (providing encouragement where it is needed). Methodological preparation, on the other hand, involves showing students the kind of exercises they can do, explaining what language materials are available that are likely to be of use to them, discussing ways of using authentic documents, making them aware of the possibility of making their own ESP materials, and so on. The teacher will be able to give all sorts of useful hints, but his primary aim here is to encourage the learner to work out and develop the battery of activities that will be most useful to him. He will probably also discuss the usefulness of activities such as translation, learning grammar rules, drills, comprehension exercises of various kinds, blotting out key words and then recreating a text, making a collage of useful expressions, learning vocabulary, making a card index, etc. He will doubtless wish to make the student aware of some of the ways of analysing a text and particularly of the possibility of functional analysis. It might also be useful to explain some of the theoretical aspects of second language learning, and the teacher will need to be acquainted with research in this field, and should ideally be pursuing his own research in applied linguistics.

In view of the range of students and therefore the range of specific interests and needs likely to be encountered, the ESP teacher will need an intelligent approach to subject matter of all kinds, although he obviously cannot be an expert in all the different subject areas, and need not understand all the intricacies of a text. It can be a useful exercise for the student to explain the

subject matter to the teacher, who will ideally have sufficient background knowledge at least to be able to help the learner define the linguistic categories and analyse his own linguistic needs.

Another important function of the ESP teacher working partly within a SDL framework is the production of learning materials. Some of these may be of a very general nature, dealing with such fields as grammar, social interaction, general academic writing, study skills, reading techniques, note-taking, etc. However, it is sometimes necessary to prepare materials designed to meet a very specific need, and this can usefully be done in conjunction with the student, so as to encourage him to continue making his own materials, or sometimes with reference to a lecturer in the relevant department, so as to be sure of exactly what is required.

Finally, the ESP teacher has an extremely important role in helping the learner to evaluate his work and possibly also his learning techniques. Many students ask for periodic correction of samples of their written work or other types of open-ended exercise. This can be extremely useful, as there are some improvements a learner would not normally be able to make on his own, and it also presents an invaluable opportunity to train students to correct their own work.

Thus, although the ESP teacher may not be seen as the source of all information or as the enforcer or producer of learning, he does have a number of very important functions, and many more could undoubtedly be added to the few I have outlined. As Holec says:

> '. . . the teacher will find his role becomes more varied rather than curtailed, strengthened rather than weakened (not in terms of authority but in terms of competence) and much greater demands will be made on his creativity than on his highly developed knowledge of teaching techniques. The traditional teacher who might have been regarded as 'replaceable' (cf teaching machines) will give way to a teacher whose role in the process of developing the learners will be irreplaceable.'
>
> (Holec, 1980)

It has been suggested (Skehan, 1980) that the development of a range of self-access materials would be a way of making ESP learning more cost-effective. This is certainly true, but I believe the emphasis should be placed on the increased effectiveness rather than the reduced cost. SDL may be a more effective way of learning, but ESP teachers are still a vital ingredient. The difference is that they need to be trained in some circumstances in the art of not teaching.

THE FIRST FIVE SECONDS: THE ESP TEACHER AND 'OUT-OF-THE-BLUE' LANGUAGE

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The subject of my paper is the role of the ESP teacher in investigating overseas postgraduate students' oral comprehension difficulties in informal study situations. By informal study situations I mean situations in which the language is spontaneous, interactive (or potentially so) and colloquial. I want, in particular, to focus on language in the science laboratory, as an example of an informal study situation. I shall describe a small piece of research I carried out in this area and use this as an illustration of how much – or how little – can be gained from an ESP teacher, with very little scientific knowledge, venturing into scientists' territory.

Before I start I should like to say a little bit about my title and what I mean by 'out-of-the-blue' language. What I have in mind is language where the listener gets very little help, either from the non-verbal context or from the verbal context. As the title – *The first five seconds* – suggests, I am thinking of initial utterances, coming after silence – opening remarks, questions, comments, directives – but also of stretches of language occurring during the course of, or at the end of, a piece of discourse and which introduce a sudden switch in, for example, language function or subject matter.

This sort of language can cause particular difficulty if delivered in a rapid, colloquial style and, above all, if the listener is also being called upon to respond immediately in some way to it. Yet it seems to be at the opposite extreme from the sort of situation most listening comprehension courses prepare the learner for. These latter usually have two features in common. Firstly, they stress the importance of contextualisation. It is not reasonable or realistic to throw foreign students in at the deep end, into a lecture on, say, ecology, or into a conversation between two middle class people in a London suburb talking about mortgages and babysitters. Careful preparation is needed. Some would even say that the most important part of a comprehension exercise is in the work put in before the student is let loose on the text. The second feature most comprehension material has in common is the emphasis laid on getting the gist of the lecture or discussion or conversation. Students are encouraged not to 'hug the segmental ground', as Gill Brown (1977) puts it. Skills of prediction and intelligent guesswork, of disentangling the relevant from the irrelevant, of spotting boundary markers such as 'Right, well' or 'On the other hand' etc are developed.

Obviously, this is a perfectly appropriate approach for preparing students for understanding lectures, discussions, conversations, Sir Robin Day on the

television. But what help is it to the students where there is little or no contextualisation, and/or where the stretch of language is so short that it is difficult not to hug the segmental ground (there being little else to hug), and where the student is in a situation where he has to understand immediately? It is true that many initial utterances have a clear non-verbal context: 'Hold this while I pour this into it', for example, or 'Look! He's slipped on a banana skin!', But on numerous occasions they have not. Even 'Do you come here often?' is 'out-of-the-blue' and not a cliché to a newly arrived foreign student at his first disco, and, if delivered in a rapid, colloquial style, would possibly not be understood – especially with the background noise.

Realising the problem in **social** situations, I have produced a series of exercises, recorded in rapid colloquial style, in which short utterances came at the student 'out-of-the-blue', and he or she had to respond in some way. These exercises are designed mainly to familiarise students with that particular segmental ground native speakers don't need to hug because they are so familiar with it already – namely unstressed grammatical items such as pronouns, auxiliaries, prepositions and particles, question words, etc. The exercises also give practice in recognising immediately numbers, dimensions, expressions of time, place, quantity, degree, shape. They were devised with social situations in mind and are placed in communicative **social** settings. My research was intended partly to find out how relevant or useful they would be in an informal **academic** context. I chose the science laboratory because it is where many of my students spend a lot of their working time and it seemed a likely place to encounter a similar sort of communication problem.

The research I carried out took three forms. Firstly, I talked to the people the foreign students encountered in the laboratory – their supervisor, demonstrators, assistants and technicians, other students. Secondly, I attended laboratory sessions in various departments – agriculture, anatomy, bacteriology, biochemistry, chemistry, engineering, pharmacology, soil science. Thirdly, I sent out a pilot questionnaire to forty-five of the students I had taught over the past two years.

To summarise the comments of the people in the laboratories, lecturers, in particular, mostly started off by saying the comprehension problems were slight compared with the problems of understanding lectures and seminars. This was because in a laboratory situation, at least they got feedback, they knew immediately if a student had understood or not and could explain further, if necessary. However, this was sometimes a simplification of the problem. It wasn't always the case, for example, that people in the laboratory did know immediately if a foreign student had understood or not. I heard of two cases of a fatal accident almost occurring – one by electrocution, one

by cyanide poisoning – attributed to foreign students not having fully understood oral directives. Also, many of their supervisors said that foreign students were often reluctant to admit when they hadn't understood – or else remained silent where a more positive response would have been forthcoming from a native speaker. Also, what they meant by problems being 'slight' needed careful interpretation. One professor told me he had had no difficulty communicating with one student whose oral comprehension I knew to be weak: 'Oh yes, but she had no problems with reading, so I just wrote everything down'.

Laboratory assistants, demonstrators and technicians, less used to talking in a slow, formal style, and less willing maybe to communicate in writing, admitted to having more problems. They attributed these problems mainly to the colloquial language used in the laboratory and also, of course, to the strong regional accent and use of dialect words. Nobody thought that scientific or technical language was any problem. And, indeed, one of the first things that struck me about the language I heard in the laboratories I visited was its informality rather than its technicality. As with other areas of English, there seemed to be, on the one hand, a very formal way of talking about science, and, on the other, a very informal way. I didn't actually hear any instances of 'out-of-the-blue' blue language in any of the laboratories but there was a lot of colloquial language things were 'yuky'; or 'ropey'; or 'dicey'; you 'bashed on with what you were doing'; 'you twiddled the thingumigigs a wee bittie' and 'gave a shout' if you have a problem. There were also colloquial expressions for referring to pieces of equipment or activities which had to be learnt by all newcomers, foreign or otherwise. For example, one engineering student I talked to told me that 'adjusting the potentiometers' is called 'tweaking the pots' in Aberdeen but is referred to differently in Newcastle, and differently again in London where he had been previously.

The question of understanding was, of course, closely linked to other factors – above all, the competence of the student in his own subject, his practical experience in handling laboratory equipment, etc. Most supervisors pointed out that foreign students from many countries are not used to working in a laboratory, that all of them, in any case, in the first few weeks had to find out where everything is, etc, and that this is considerably aggravated if their understanding of English is not good. In addition, the relationship of the postgraduate student to other people in the laboratory is often a delicate one. Many supervisors said that they liked to take it for granted that postgraduate students knew what to do. Consequently, instructions, explanations, questions tended to be put casually, in a throwaway style. I noticed this myself when I was in the laboratories, the brevity of the exchanges and the frequency of, for example, the statement form (without question tag) as a

way of asking a polite deferential question: 'You've switched it off?' or 'You added it yesterday?' instead of 'Have you switched it off?' or 'When did you add it?' This deferential style not only makes the language more difficult to understand, it seems to me, but it also makes it more difficult for a student to say that he hasn't understood.

Another factor that came up was the amount of goodwill and friendliness the foreign student can count on, which again often depends on the foreign student's own personality. In Aberdeen the student is particularly dependent on the goodwill of technicians or anybody who would normally express himself in the local dialect. The majority are capable of switching into standard English without any difficulty (as one technician told me 'I can speak television English as good as anybody') but an unfriendly technician, if he feels like it, may well come out with something like: 'Tak 'e roon een' (meaning 'take the round one').

Coming to my own visits to the laboratories, trying to be 'as a fly on the wall', I think the most valuable aspect was actually being there, experiencing the conditions under which communication was taking place: the variety of people that the students have contacts with – their different accents and styles of speech; the noise against which students very often have to hear and understand; the fact that the person talking often has his back turned to his listener; the fact that, in a teaching laboratory – rather like being shown round a museum – the group can be large and disorderly and the foreign student can find himself at the back of it. For someone of uncertain English, the difficulty of saying he hasn't understood in such circumstances is enormous. Another thing that struck me was how important it was that the request, directive, warning, should be understood, exactly and first time. 'Sorry? What did you say?', perfectly acceptable in casual conversation, would be a very unfortunate response in many circumstances. I have in mind, for example, one occasion when a lecturer shouted at a Brazilian student, 'Get me the water bottle – the red-topped one'. At the time of speaking he had his back to the student, and also, between his teeth, he was holding a syringe, while his two hands were occupied with controlling a rumbustious calf that he was about to take a blood sample from.

As regards the language used, as might have been predicted, a great deal of it was 'out of the blue' – questions, comments, directives. There were also a lot of passing jokes and idle comments ('Not a good time to sneeze' – while carefully measuring out some lethal powder in the chemistry laboratory, for example). I also noted the complicated nature of a lot of what was said, making it difficult to follow when spoken rapidly. 'If you pull it through the other way, you'll find it easier' or 'I mean, we don't want to cut just one section but you don't want to cut the whole kidney'. A lot of the language

was brief, elliptical, tentative, speculative, often only half addressed to the other person, making it difficult again for anybody to ask for it to be repeated but making it frustrating all the same if he hadn't heard. Comments such as: 'I wonder if you'd done a control . . .' when looking at slides, or 'Unless we forget to switch it on'.

Many of the people in the laboratories had commented on the problem of not knowing when foreign students had understood or not. I noticed frequently the native students' habit of repeating an instruction, partly to check they had got it clear, partly to memorise it. A supervisor might say: 'Heat it to 400 and then reduce the temperature to 350' and the student might echo: '400, then 350'. Obviously, a useful habit to encourage in foreign students. My discussions with people working in the laboratories and my own observations had, therefore, provided me with a great deal of information about the 'context of utterance' that I could not have easily imagined by remaining in the classroom.

To summarise the information obtained from the pilot questionnaire, it was sent out to forty-five first and second year postgraduate students in the science and engineering faculties, and medical school. All the students were either on taught MSc courses or doing research for an MSc or PhD degree. There were thirty-two replies. The questions asked were about whether they had had difficulty in informal study situations, such as the science laboratory, during their first six months at a British university, and, if so, with what sort of people, and for what reason. They were also asked how their difficulties in informal study situations compared with their difficulties in understanding lectures and seminars, and how they felt their work generally had been affected by these difficulties. Another question asked if they still had difficulties. Just over half said they had had a lot of difficulty in understanding during the first six months – a few specified particularly during the first three months. The majority said they had had most difficulty with laboratory assistants, technicians, and other students. Their difficulties, they considered, were caused by people speaking too fast, by people speaking with a strong regional accent or by people using dialect or colloquial or slang expressions. Just over half also said that they had had more difficulty in understanding informal situations than in understanding lectures and seminars. On the other hand, very few felt their work had been seriously affected by their difficulties – those who did say it had been were PhD students – and most of them said that, at the end of six months, they were having much less difficulty.

To conclude, how useful had my excursion into the world of science been? It hadn't been my intention to carry out a detailed discourse analysis of the language of the science laboratory. I don't know how feasible or desirable

this would have been. What my visits did do first and foremost was to remind me of, on the one hand, the complexity of human communication, and, on the other, of the very specific purposes for which I was teaching foreign students to communicate. I think it is very easy to forget both of these factors in the idealising atmosphere of the EFL classroom. Secondly, what emerged from all three parts of the investigation was the importance of familiarising foreign students as early as possible with rapid colloquial speech and with local accents and non-standard forms. Materials that I had labelled as 'Listening comprehension in social situations' – and that to some extent I had regarded as a social frill – authentic recordings of colloquial and regional English, and the listening exercises I talked about earlier – I realised should occupy a fairly central position in any study skills course. Should any of the exercise material be adapted or radically changed in the light of my observations? Its main purpose – to give practice in recognising unstressed grammatical items in rapid speech – I still thought to be valid. I certainly saw ways, however, in which I could modify or expand the material to meet the specific needs I had noticed – by the inclusion of a lot more 'out-of-the-blue' questions, exclamations, comments, etc relevant to the laboratory situation (ie placed in a communicative setting the students could readily imagine) and by the inclusion of more exercises eliciting responses to demonstrate understanding – or the lack of it, particularly in the two areas I had noticed – after questions using a statement form: 'You've switched it off?' 'Yes, I have', or after instructions: 'Heat it to 400 and then reduce the temperature to 350'. '400, then 350'.

Another result was a more general one. The interest I had taken in the students' work – via the questionnaires, as well as the talks and visits – was very much appreciated indeed by all the staff and students. Nobody seemed to feel that my presence or enquiries were unnecessary. On the contrary, I got the impression they were very glad to have an opportunity to discuss with an 'expert' what they obviously considered to be an important problem.

HOW MANY PEOPLE? OPPOSING VIEWS ON THE FUNCTION AND PREPARATION OF THE ESP TEACHER

Fred Chambers and Jo McDonough, University of Essex

PART ONE

The main point of the argument that I'm going to present is that the ESP teacher is an expensive burden, even an unnecessary one in his present form in the ESP situation. Two considerations are going to guide my basic argument. The first of these is very non-controversial. It is that ESP practitioners consider themselves, and wish to be considered, as being involved in a discipline that is concerned with some kind of academic rigour. I am not going to cite evidence to support this; I hope it is the view of everyone here.

My second tenet would seem to be a little more controversial. It is that the 'specific' in English for Specific Purposes refers to **both**:

1 the purpose the language is being learned for

2 the language itself

It may be that again I am preaching to the converted. However, there is a strong school that argues that 'it is the purpose for which the learner is studying that is **special** or **specific**, not the language' (Pauline Robinson, 1980, p.8). In an attempt to reduce what was felt to be an unhealthy obsession with special languages, the term 'specific purpose' was coined with an intended emphasis on purpose rather than language. To me the view expressed by Pauline Robinson represents an over-reaction as it seems eminently clear that the language must be special or specific (whichever one prefers) and is implicitly recognised as such, if for no other reason that if the languages – or rather registers – are not different how could we teach ESP as we would be teaching the same homogenous language all the time. And in any event if we are not aware of the specific language, what has happened to the appropriacy that we claim?

So, I am suggesting that ESP should be concerned with teaching a programme based on some kind of fairly rigorous analysis of both the purpose for which the language is being used – and the language itself.

This desire for rigour serves a twofold purpose – what might be referred to as the acceptable and the less acceptable faces of ESP.

1 It is academically desirable – endowing us with a certain prestige.

2 It is commercially desirable – that prestige ensures respectability that means our customers can feel confident of our impeccable pedigree.

And the vehicle of this rigour is the ESP teacher whose multi-faceted role included:

1 deciding what to teach;

2 producing and evaluating materials;

3 teaching and testing.

Again I quote from Pauline Robinson, but this time in agreement – 'It seems to be an unavoidable facet of the ESP teacher/course director that he should be the materials writer as well' (1980, p.34). A glance at the syllabus of the several institutions now providing courses for ESP teachers, all of which include large components on needs analysis and materials production, would provide further support for this argument.

There are, of course, occasions when it is possible because of a high degree of similarity between courses to avoid the complete process of analysis – materials writing – teaching, by using modified materials from earlier courses. Alternatively a little judicious selection from commercial materials may, as John Swales (1981) suggests, avoid a heavy commitment to materials writing. In these cases, apart from possibly the selection and modification, the course could be taught by any competent EFL teacher – after all as Ewer (1976) points out, the methodology in the ESP classroom is not all that different from the EFL one. However to simplify my argument I will refer to the archetypal ESP situation described above where the ESP teacher is faced with the whole process of course design.

Let us very briefly consider what the putative ESP teacher has to do in these situations. If we are to be as rigorous as we suggest we are, it is necessary as I have said above to specify both:

1 the purpose

2 the language

Thus it will be necessary at least to:

1 establish the target situation;

2 establish what occurs in the target situation;

3 obtain a corpus establishing minimally interlocutor, illocutionary force and most typical realisation;

4 determine some order of priority amongst these acts.

This will specify what is to be taught but not how. Next a framework – a syllabus – of some kind must be provided. Presuming all this has been done materials production can begin, but numerous inter-related factors make this, if it is done in a rigorous fashion, difficult. Some of the most obvious problems include:

sequence and weight of components;

acceptable 'depth' of subject material for both teacher and pupil;

felt needs and expectations of the various participants;

knowledge both of the language and the subject brought by the pupil, extent of use of 'authentic' materials.

And, of course, generally after an initial preparation stage concurrent with all this, the teacher is involved in classroom teaching.

Now none of these problems are insuperable. Some of our instruments may not be as refined as we might like, but having identified the problem we can usually make some inroad upon them. The chief cause of the problem that makes the ESP teacher's task so difficult is that of time – or the same problem once removed, money. The chances are that all of the above is operating within severe time constraints both in the preparation and teaching phase, and the ESP teacher's tasks, outlined before, are generally difficult and time consuming to solve.

Philips and Shuttleworth (1978) have already commented on the impracticality of working within such constraints. The results tend to be a rush job where our professed rigour goes to the wall and 'ad hocness' and vicarious experience prevail ('Air traffic control course – why not, we've all seen *Airport '79*).' Alternatively materials are drawn from other not entirely suitable sources, a procedure criticised by numerous practitioners and theoreticians alike: the Allwrights (1977), Gerighty (1976), Currie *et al* (1974), Porter (1976) and so on.

What are the possible solutions to these dilemmas? Logically, three possibilities come immediately to my mind:

1 more time is permitted for preparation;

2 more staff are used;

3 courses with greater generalisability are designed.

The last of these three I am going to ignore, although it does have its proponents, eg Abbot (1978). It may eventually be a viable solution but first, a great deal of research is required to determine what is optimally generalisable – in fact this seems a short cut back to General English. Until the research has been done, generalised ESP seems a rather intractable contradiction.

Unfortunately the remaining two alternatives:

1 more time;

2 more staff;

are both closely linked to that major constraint for everyone involved – money.

Given more time, courses more in line with our professed, preferred standards could be implemented. However, funding bodies in the general nature of things are not likely to accept this. Longer courses, even longer preparation time, implies more costs both directly in fees and indirectly in time lost from the job. The other solution, more staff, would involve an intensification of labour; more people involved in designing and implementing the course. This would be likely also to offend the major constraint of cost.

There is however a fourth possible solution. I suggest that more staff can be used on a course – but use of staff should be rationalised. The type of person who is capable of carrying out the design and implementation of a course as described above is an intensively trained, highly skilled individual, and as such represents an expensive resource. That expertise must therefore be used economically. Is it necessary that all ESP teachers should be trained to such a high degree? The additional skills that distinguish an EFL teacher from an ESP teacher lie not so much in the area of classroom teaching, but in the areas associated with materials production. Again I point out that what goes on in the ESP classroom is substantially what occurs in the EFL classroom. Hence it should be possible to rationalise our use of labour by using the present highly qualified ESP teacher in the area where he is

specially qualified – materials production, and using 'less well qualified'[1] staff to teach. I thus make the distinction between the present ESP teacher who now primarily becomes a materials writer, and the less qualified and hence more available, less experienced commodity, the present EFL teacher who becomes the ESP teacher freeing the materials writer to concentrate on his real area of expertise.

Let me immediately emphasise a few things I am not saying. Firstly our putative less qualified teacher is not an unskilled person. Teaching, as we are all aware, demands skills, knowledge, experience, intuition and the ESP teacher, like any teacher, must have the training to develop these – but what he would not need is the knowledge and training in the complex areas of target situation analysis and materials writing. Nor am I saying that potentially they are not capable of being materials writers. All material writers-to-be would first have to be trained ESP teachers as I will specify shortly.

Neither am I saying the materials writer would never teach. Some teaching will be necessary for them, to be able to gain ongoing insights regarding the effectiveness of the materials and the nature of their students – but teaching is no longer their primary concern.

Thus there is now a natural progression within the profession. Individuals train as teachers with their expertise concerned with the classroom.

Those who wish, and are able, can train further in the additional complexities of needs analysis, register analysis, materials production and so on.

The result of all this would be that ESP teachers would be EFL teachers working with programmes and materials devised by the materials writer. Not requiring the extra training necessary for ESP materials production, they are more available and hence less expensive commodities. In turn the materials writer is largely relieved of teaching commitments and is able to develop and use his particular expertise to the full. By this greater division of labour, presuming that the materials writer will now have the time to work in conjunction with more than one teacher or course, this particular arrangement should be capable of producing at least the same amount of material of at least the same quality for a lower cost per unit, and so making it possible for ESP to become more labour intensive without a proportionate increase in cost and, potentially at the same time, because of the inherent advantages of specialisation make it possible to produce better courses. Thus in turn, it

[1] The use of the term 'less well qualified' has caused me considerable soul-searching. What I intend to mean by this is that the teacher is qualified in fewer areas of expertise, a point considered further below.

should be possible for ESP to come closer to the standards of rigour which we have set as its target.

I have, because of present time constraints, over-simplified and avoided certain problem areas. For instance, I have not specified the question of the most effective teacher/materials writer team. One suspects the larger the arrangement the more suitable the system. However, despite these problems I believe the case is, when examined, persuasive. What I am suggesting is a rationalisation. To summarise I am asking that we consider modifying the role of the ESP teacher quite drastically. Hence using our scarce resources more effectively, we may be able to:

1 teach more effectively and economically;

2 remain true to the rigorous standards which, at the moment, one suspects, we only pay lip service to.

PART TWO

It is the aim of this section of the paper to argue against what I regard as a fragmentationist view, as exemplified in the first half of this joint paper, of the teacher's role and preparation. I should like to stress that I am primarily, but not exclusively, concerned with what is theoretically or academically desirable rather than with practical constraints, not because the latter should be ignored but because the former are more amenable to being held as a constant against which criticisms can be levelled and criteria evaluated.

The preceding section set out the different factors that obtain in a typical ESP teaching situation, and claimed that unless pressure is taken off the teacher 'on the ground', then 'ad hocness' inevitably results. A solution based on role separation was then proposed. What I want to claim, however, is that this 'ad hocness' is not so much the result of overburdening, rather it would be dealt with better by improved preparation and training based on one person, not by adding to staff and then trying to rationalise their role. What is missing in the latter solution is any notion of the synthesising nature of pedagogy.

Thus the standpoint taken here is what might be called an integrationist one, and it is based on three broad areas. The first is from teacher training in general. The essentials of the debate are not exactly new as an educational issue. Educationalists have long been concerned with the rift between theory and practice, some regarding it as unbridgeable, others as damaging and undesirable, and trainee teachers and others on the receiving end have also been worried from a different perspective about the apparent irrelevance of

educational theory for the solution of practical problems. Morrison and McIntyre put the problem as follows:

> 'Between these practical suggestions and the concept and theories of educational philosophy there is often a wide gap. The problem is that very few theoretical courses are about teaching, and that methods courses, which are about teaching, have no theoretical foundation.'
>
> (p. 65)

I wish to suggest that those who perceive irrelevance are both right and wrong: they are right because the trainers and preparers of teachers, whose function it is to apply knowledge, seem sometimes to have failed to do so, and they are wrong if they assume that irrelevance is an automatic function of trying to consider theory at all, rather than a shortcoming in the system of preparation and training.

Morrison and McIntyre's comment is reflected by Widdowson (1979), who sets out the theory/practice distinction in terms of 'educational' and 'vocational' courses. (His arguments for integration will be taken up later).

The second area is bound up with the question of the nature of ESP and its locus within language teaching in general. It seems to me that there has long been a tendency towards the isolation of types of language teaching, and the concomitant establishment of criteria and terminologies which have obscured the powerful generalisations that can be made across different sections of the profession, for example generalisations about syllabuses and course construction. (These sections are not as disparate as they seem, be it ESP, so-called 'general' EFL, FLT, MTT, EST and so on; Ray Williams' paper later in this Conference will be concerned with a similar theme). I would like to suggest, without digressing in too much detail about definitions, that 'ESP' is better viewed as having elements that are different in degree and emphasis rather than kind. This is not to claim that we therefore need an ironing out process whereby necessary information is withheld from intending or practising teachers on a specific-purpose language course; Ewer (1975), for example, in a key article on the training of the EST teacher, sets out a number of crucial factors which must be included in a training programme. However, apparent qualitative distinctions can only reflect inadequacies in more traditional training and preparation, and the fact that the language teaching profession in general and ESP in particular are in a kind of interim, not final, relationship and are gradually merging. In the early days, there was a strong case for setting up ESP courses as something new and different. Ultimately, the 'ESP teacher' is not an isolate, any more than the branches of language teaching form a set of isolates.

The third area is closely related to the second, and concerns the role of the teacher in the context of the 'discipline' of applied linguistics. 'Good' applied linguistics entails not just a set of pieces of research (whether independent, semi-independent, cross-referring or even in-breeding is not an issue here) but the establishment of strategies for crossing between theoretical considerations and pedagogical problems. In Pit Corder's (1975) words:

> 'Applied linguistics is a set of related activities or techniques mediating between the various theoretical accounts of human language on the one hand and the practical activities of language teaching on the other.'
> (pp. 4, 5)

A glance at applied linguistic research claiming to be relevant to language teaching reveals a fair amount of investigation that stops short of crossing the bridge, and the classroom practitioner is once again left high and dry. Perhaps what are needed are, more exactly, applications of applied linguistics, which might more accurately reflect the stages in the process.

I should now like to return more specifically to the points made in the first half of this joint presentation. I agree entirely that the ESP profession (indeed the language teaching profession) should be based firmly on serious and rigorous research in a number of host disciplines: particular mention has been made, for example, of the areas of needs analysis and discouse analysis.This is not the place to go into detail about the fact that an expert in discourse analysis alone would arguably need to be a fair number of people rolled into one. I want to claim, in the light of preceding arguments, that the teacher should ideally be, not a passive recipient of research, but actively able to synthesise information from a number of sources for the solution of pedagogical problems and the establishment of procedures and techniques. These solutions are the foci which represent the metamorphosis or fusion of individual elements, so that the whole is more than just the sum of the parts. Such a mediating frequently is necessary if we are not to fall into the trap of tacitly and erroneously assuming an isomorphic relationship between a research investigation and its pedagogical potential and applicability.

Let us take two simple examples to illustrate this. Many teachers, particularly in ESP situations, are often in the position of having to take administrative and organisational decisions, and this often includes a need to evaluate teaching materials with a view to deciding on purchase. Materials can be evaluated in a number of different ways, some fairly trivial. What is needed is a mechanism for perceiving how the different levels and parts are organically related, whether this is overtly stated or not: the overall organisation of the materials will reflect the author's view of language and learning, and the

dependency relations between them, and will have direct implications for the nature or exercises and task types, and the coverage and breakdown of language skills. All this clearly has the status of a serious exercise in applied linguistics. I am uneasy about the term 'materials', because it carries the traditional but limited sense of texts plus exercises. It would be wide-ranging and more comprehensive to think in terms of a set of 'procedures' for use in the classroom, of which printed materials would be a sub-set.

I take my second example from the experience of viewing teacher training films with groups of students on applied linguistic and TESP courses. The particular film I have in mind is the one in the series *Teaching observed* (published jointly by the BBC and the British Council) concerned with ESP. To understand clearly the nature of the teaching methods presented in the film requires, once again, the synthesising of information from a number of sources: this reveals both overt and underlying assumptions about views of teaching and learning, and of the nature of language and scientific investigation, as expressed by the teachers on the film.

It is worth raising the question of whether different arguments would hold according to where the teaching, and therefore the teacher training, was taking place. There might be a difference, for example, between training native speakers for work in the UK and training Chinese teachers of English who work with very few resources. I would take issue here with Chris Kennedy (1979), who writes:

> 'A training course should differ depending on the characteristics of the trainee . . . and on the second major variable, that of the teaching situation for which the teacher is being prepared.'
>
> (p. 42)

It seems to me that, whoever the recipient of the training, the principles on which that training is based, as opposed to the approaches and techniques used for introducing them, should be chosen, indeed evolved, for their maximum generalisability. There is an analogy to be made here with the process of comprehension. It is frequently the case that materials and techniques for the teaching of, say, reading comprehension fall short of their aim by only requiring the learner to understand one particular text on one particular occasion (for example by the misuse of translation), instead of inducing in him/her more generalised strategies for the understanding of texts which can then be transferred to other instances. To fragment teacher expertise by only allowing him/her to operate within a limited sphere is not unlike this fragmentation, and hence ultimately distortion, of the process of comprehension.

In the discussion following Widdowson's short article quoted above, the following remark was made, rather mysteriously, in the context of asking what university training programmes could do:

'No one was sure, but it was agreed that a teacher was not a plumber.'

I shall conclude by allowing myself the liberty of interpreting this in the light of Widdowson's paper, to which the remark was addressed, and by quoting Widdowson who expresses the tenor of the above remarks neatly:

> 'It seems to me that even if we are principally concerned with the classroom practitioner, we should make him aware of the whole language teaching process and of the wider pedagogic context and significance of his operations. Otherwise we shall again be neglecting the necessary educational dimension. We shall have failed, if we turn out teachers who cannot write materials or materials writers who cannot teach.'
>
> (p. 68)

LEADING THE ESP TEACHER TO THE LITERATURE

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The fast-growing ESP literature is generally recognised to be problematic, one immediate problem being to define its scope. However, for the purpose of this paper, I shall exclude all material that was not originally produced for an ESP objective. Therefore, I shall not consider further many kinds of material that can be utilised by ESP practitioners even though neither designed for them nor produced by their co-practioners, such as subject textbooks, various types of reference work, contributions to an understanding of the English language, 'off-air' recordings, or work in the broad ELT field. This exclusion is classificatory rather than dismissive; after all, any part of a library can be an ESP resource. Now do I want to imply that literature designed for ESP is necessarily more central or useful than material designed for other ends. Indeed the opposite may well be true, for the material here excluded typically represents primary sources, whereas much of the ESP material *per se* is secondary – idealised, filtered through the distorting lens of a language teacher's perceptions, and de-authenticated for pedagogical purposes. However, the narrow definition of ESP literature I have adopted can be justified in terms of the topic of this seminar, my major concern being to persuade ESP teachers that it pays to become more aware of the thought and work of their ESP colleagues, wherever they may be.

A second problem for those concerned with ESP literature is its classification. I know of no standard library system that can cope with the current proliferation of material as it concomitantly becomes both more specialised and diversified. The scheme developed by ETIC and adopted by Pauline Robinson[1] is certainly a brave attempt, but in some respects it fulfills best the needs of a librarian classifying by content (English for science, medicine, commerce etc) and rather less well assists those typical groups of ESP practitioners around the world who would wish to organise a useful working collection as a staff resource.

The third problematic area is directly related to the second; its comparative inaccessibility. Indeed, the difficulties here are sufficiently tiresome to suggest that for certain purposes it makes sense to categorise ESP literature precisely in terms of how easy it is to obtain. In my own estimation, this would lead to something like the following five types of ESP material, graded according to increasing difficulty of access.

Type 1 **Commercially-published ESP textbooks and teacher's books** (such as that by Robinson already cited).

As these are listed in widely-distributed catalogues the only constraint in maintaining a single-copy reference library is financial.

Type 2 **ESP journals and volumes of collected ESP articles**

The accessibility of Type 2 is variable. Some, like the relevant *ELT documents* and the *ESP newsletter* from Oregon are neither difficult to know of nor to obtain. Indeed, several journals such as *EST/ESP Chile, Al-Manskh, ESPMENA* and *Lenguas para objectivos specificos* will often be sent on institutional request. On the other hand, the 1979 volume offering the papers given at the 1975 Hammamet Conference 2 is already quite hard to obtain, and special issues, such as the 1978 *MALS journal* 3, can escape the unwatchful eye. Further, some journals, for instance *ESPMENA,* will slip way behind their announced publication dates, and there remain ephemeral and exotic rarities like the issues of *Petroleum English bulletin*.

Type 3 **Occasional ESP articles, reports and reviews in other journals; individual reports and papers**

Maintaining a reasonable holding of these singletons requires a certain amount of dedication; journal-searching, photocopying, writing cajoling letters, keeping an ear to the ground. However, as a profession we are indebted to the Clearing House service so efficiently provided and in such cramped circumstances by Karl Drobnic at Corvallis; and we should be more worried than we seem to be by the uncertainties at ETIC Archives.

Type 4 **Dissertations and theses on ESP**

This is decidedly difficult. Even if an ESP thesis title happens to come to sight, purchasing an inevitably expensive photocopy is a highly speculative investment. However, we can certainly applaud the emergence in the last few years of Birmingham's *ELR monographs* and Lancaster's *Practical papers.* Nevertheless the ESP profession could and should make better efforts to circulate the significant findings of higher-degree research.

Type 5 **Duplicated teaching materials**

Even a representative stock of Type 5 materials is virtually impossible. It is hard to see how any institution could aim at getting more than a small percentage of the world's output of duplicated ESP teaching materials. Even SELMOUS does not do what it stands for, and it seems generally recognised that the British Council Direct Teaching of English Operations around the world have yet to devise a system whereby ESP materials developed for one institute can, if appropriate, be made available to others.

With the probable exception of Type 1, the average ESP lecturer (whether a native speaker of English or not) is largely unfamiliar with his literature.

There are, as I have indicated, special difficulties with Types 4 and 5, but there seems relatively little excuse for continuing to ignore the existence of most of the items covered by Type 2 and at least some of the items to be found in Type 3. Even if information is provided it is rarely acted upon. I know from my association with *ESPMENA* that only a small minority of the ESP practitioners told of the arrangements for free dispatch actually write in and ask to be put on the mailing list. I have no reason to suppose the situation is any different with the other journals of similar status.

I have discussed elsewhere the causes and consequences of the professional tension that so curiously exists between the ESP practitioners and the work and thought of others[4]. Here I will make just one further observation. In my experience, the ESP practitioner usually remains unrepentant if it transpires that he had not read something that would have been germane to his immediate professional concerns. However, that same individual does feel a need to be 'well read' if he is also required – as he often is – to work in some other area such as teach undergraduate courses in English or linguistics or become involved in some aspect of ELT teacher-training. It seems as if the ESP practitioner's bias towards producing **special** materials for a 'one-off' situation spills over into a biased rejection of all background papers as being, *a priori,* relevant to that special situation.

This apathy towards the literature contributes to narrow perspectives on job specifications, and isolationist tendencies in ESP projects. These, in turn, help to reduce the cost of effectiveness of ESP, restrict its research parameter and do nothing to help raise the quality of research. Ten years ago, an ESP teacher's professionalism was undiminished by his unawareness of ESP literature as narrowly defined here because that literature (in comparison to that of Applied Linguistics for example) was insubstantial. I do not believe today that this is any longer the case. I offer a single instance, of many that could be given. It is taken from *FORUM,* April 1977, and is an extract from an article entitled *Devising a university service programme, Ferdowsi University, Meshed* by Marzieh Samii and David Kent. The article indicates that the programme employed a number of well-qualified linguists and was well supported financially. There is a single reference to a comparable programme at Pahlavi University; there are no references to the ESP literature. Here is part of the conclusion:

> 'It is apparent that more attention needs to be given to such reading skills as scanning, increasing speed, and recognition of paragraph organisation. We are preparing additional materials for this purpose to be used in all classes. Also the grammatical review and set readings must be gotten through more fluently, to allow more time for working with text-book

level materials. We also hope to tailor certain classes to the unique needs of certain facilities.'

As the *Times* neatly puts it, 'Have you ever wished you were better informed?'

In the second half of this paper I would like to describe and discuss our attempt to lead the ESP teacher to the literature on the British Council Summer School held at Aston University in July 1980. The forty-seven course-members were predominantly lecturers or instructors in EAP drawn from most quarters of the globe: fifteen from Eastern Europe, eight from Scandinavia, seven native speakers of English (all working overseas), four from Thailand and ones, twos and threes from countries in Latin America, the Middle and Far East and Western Europe. As part of the course fee participants were offered up to 150 pages of free photocopying from the Language Studies Unit 'ESP Archives'. They were given two weeks to decide on what they wanted and complete a requisition form; we allowed ourselves one week for delivery (an offer that I suspect we will be unable to repeat).

The Archives were open for browsing until about midnight every day. We provided only casual and intermittent advice – for a number of reasons. First we had made a considerable effort to assemble the materials and therefore felt that members of the Summer School could also make an effort to explore it. After all, it would have rather defeated our purpose if we had said to everybody 'well, the four key articles you need to read are A, B, C and D'. Secondly, we wished to undermine any tendencies to ask for 'expert advice' and to encourage self-reliance in sorting through the literature. We also felt that any self-confidence gained would increase the chances of course-members keeping up with the literature in their home institutions. Finally, we did not know enough about the participants (especially in the early days) to make many helpful recommendations anyway. The requests are analysed in Table A.

TABLE A

Analysis of requests for up to 150 pages free photocopying from the LSU 'ESP Archive' (based on the 44 request forms received)

A Type of item	B No of items	C Total requests	D No of different items requested	E Spread D/B	F Popularity C/B	C/D
TOTALS	376	325	182	0.48	0.86	1.8
1 Position papers	20	44	18	0.90	2.4	2.5
2 Language description – EST	55	28	17	0.33	0.5	1.4
3 Language description – other ESP	32	23	17	0.53	0.7	1.3
4 Course design – principles	46	46	23	0.50	1.0	2.0
5 Programme descriptions, surveys, etc	39	20	17	0.43	0.5	1.2
6 ESP methodology	50	71	33	0.66	1.4	2.1
7 ESP teacher training	9	11	7	0.77	1.2	1.6
8 ESP testing	9	6	3	0.33	0.7	2.0
9 ESP reviews	26	11	9	0.35	0.4	1.2
10 ESP bibliographies	14	6	4	0.29	0.4	1.5
11 ESP teaching material	39	40	22	0.56	1.0	1.8

I would like to thank Vijay Bhatia and Fiona Waterhouse for all their work on the scheme and for their tabulation of the data.

Explanatory notes

1 Column A indicates that the Archive is based on a primitive, albeit workable classification system.

2 Column B shows how the holding of 376 items was broken down into 12 sections. Sections 7 and 8 were the smallest; the former because ESP teacher training has been largely neglected until recently, the latter, I suspect, as a result of personal prejudice.

3 C and D give the raw data for requests (an average of about 7½ requests per participant).

4 E indicates the proportion of the Archive requested by somebody (if every item had been asked for the figures would have been 1).

5 Column F gives two indices of popularity. The first shows the relationship between total requests and the size of the Archive section ie it indicates the relative popularity of different sections. The second expresses the level of demand for particular items with 1 indicating a type-token ratio of 1.

Discussion

The most interesting general result is the wide range or spread of items requested; very nearly half the Archive of 376 items was photocopied at **somebody's** request. It was evidently not the case that course-members coincided in their wish to take away certain crucial papers, as is further indicated by the low ratios in the final column. It might be observed that this is what one might expect on a random-selection basis, but the appearance of the request forms, well-worn and showing considerable changes of mind, militates against such a null hypothesis. As far as the sections are concerned, they show, apart from a preference for **Position papers**, a fair degree of consistency; it is worth noting, for instance, that section eleven (actual teaching materials) closely approximated to the norm. Of the largest sections, **Methodology** was somewhat above average, **Course design** average, and **EST language description** below average. The least popular section was **Bibliographies**, the reason being, I suspect, the fact that half the course had been given a copy of Pauline Robinson's book, which contains an ESP bibliography far superior to anything in the Archives. Details of preferred authors and papers are now given in Tables B and C.

TABLE B

List of most popular authors

(Minimum of four requests for a minimum of two items)

Henry Widdowson *(et al)*	21 requests
Chris Candlin *(et al)*	13 requests
Maria Horzella *(et al)*	13 requests
Jack Ewer *(et al)*	9 requests
John Lackstrom *(et al)*	8 requests
Tom Hutchinson *(et al)*	7 requests
Pat Carmichael *(et al)*	6 requests
Jim Herbolich *(et al)*	6 requests
Ron Mackay *(et al)*	6 requests
Martin Philips *(et al)*	4 requests
Sheila Rixon	4 requests
Angele Tardros	4 requests
Ray Williams	4 requests
Peter Wingard *(et al)*	4 requests

TABLE C

Items of which more than three copies were requested

Type of item	Author and title	Number of requests
1 Position papers	Blackie. *Towards a definition of ESP*	4
	Hutchinson and Waters. *ESP at the crossroads*	4
	Swales. *ESP: the textbook problem*	5
	Widdowson. *EST in theory and practice*	6
4 Course design	Horzella. *Research and development for an English course for medical students*	6
6 ESP methodology	Candlin, *et al. Developing study skills in English*	4
	Hartmann. *Understanding texts*	4
	Horzella and Harvey. *Materials production for ESP: some first principles*	6
	Mackay and Mountford. *Pedagogic alternatives to 'explication de texte'*	4
	Carmichael, *et al. Writing notional exercises for the ESP student*	4
	Saragi. *Vocabulary learning and reading*	4
	Widdowson. *The communicative approach and its application*	6
11 Teaching materials	Herbolich. *Readings in engineering and architecture*	4

Explanatory notes

1 The writings of course tutors on the Summer School were excluded from Table B (though not from C) because of skewing caused by personal acquaintance.

2 In Table B the problems caused by rotating joint-authorship are not resolved. For example, 'John Lackstrom *(et al)*' represents not only his own papers but also those written in conjunction with Selinker and Trimble, even when he does not appear as first author.

Discussion

Although nobody is likely to be surprised by the first two names in Table B, thereafter the list of more popular authors does have its interest. First, it is heartening to note the presence of two non-native speakers among the chosen elite. Secondly, the Summer School was very much a British affair, so it is equally heartening to note that three Americans are listed. Finally, one can detect a balance between academic 'ideas men' and actual practioners working abroad.

Table C reiterates the remarkable spread in the requisition forms: no item received more than six requests and only thirteen were chosen by more than three people. It is possible to glean from these tables some idea of what ESP teachers were looking for. In the **Position papers** section, for instance, the papers by Hutchinson and Waters, Swales, and Widdowson all attempt a fairly complex and controversial overview of the state of ESP, whereas Blackie offers a straightforward clarification of what mainstream ESP has been about in recent years; and it is not without irony – given the impressive intellectual armament brought to bear on course design in the last year or two by Candlin, Hawkey, Jones, Munby and Roe, etc – that the only really popular item in section 4 was Horzella's 'hands-on' step-by-step description of practicalities. It looks as though the ESP practitioners, fairly typically represented on the 1980 Summer School, do indeed, wish to have for future reference, papers reflecting contemporary 'advanced thinking' in ESP. But they do not want only that; they want this rich diet leavened by sensible, straightforward, practical articles – articles that they may find not only useful for themselves but also eminently suitable for more junior members of their departments.

Although I grossly under-estimated the administrative and clerical demands imposed by the Archive scheme -- to such an extent that we were only able to distribute 'presents' on the final morning by dint of the extremely strenuous efforts of those concerned with photocopying, collating and

packaging – I have little doubt that such specialised library facilities provide useful support for ESP teacher-training courses. The analysis of requests does seem to indicate that the ESP teacher can be led to the literature and can be persuaded to explore its increasing depth and complexity for his or her own specific needs and purposes. It would also seem that the carrot of free photocopying of a personalised selection offers a more positive and beneficial orientation than the stick of prescribed readings. It is, of course, less certain whether there will be any permanent gain in professionalisation because of the well-attested phenomenon that intensive residential courses for teachers develop an *esprit de corps* hard to maintain in isolated frontier posts.

The Archive scheme has also been a useful experience in quite another way. The completed request forms suggest that ESP teacher-trainers may need to re-examine the criteria on which they make recommendations for ESP reading lists. If I had prepared for the Summer School a recommended reading list of thirteen papers, I doubt if even three of the items listed in Table C would have appeared on it. Now, it is a commonplace in ESP that it is dangerous for a teacher to assume that what he finds most interesting in a specific area will mirror the main interests of his students – it would now appear that it is equally unenlightened for a teacher-trainer to assume that what he finds interesting and useful in the professional literature will be found so by those coming on courses for teachers. However, this conclusion is decidedly uncomfortable. Although I remain convinced that ESP practitioners would benefit from becoming better informed about the work and thought of co-practitioners, at least part of their reluctance to do so may stem from their being directed towards items from the ESP literature (however distinguished) that they find it difficult to relate to, because such items may have been produced for aims and with presuppositions that turn out to be alien to those we wish to help and encourage. If we are to take seriously our responsibility for developing the ESP teacher, we need to ask not only what he or she find useful in the literature, but also to discover the reason why. There is a long way to go.

THE POTENTIAL BENEFITS TO THE ESP PROFESSION FROM GREATER AWARENESS OF DEVELOPMENTS AND PRACTICES IN L_1 COMMUNICATION SKILLS TEACHING

Ray Williams, University of Aston in Birmingham

My contribution to the conference theme 'The ESP teacher' is to put the case for greater contact and co-operation between ESP and what I regard as our sister profession – namely, L_1 Communication Skills. (By L_1 Communication Skills I mean, of course, service-teaching to improve (primarily) the written and oral skills of native-British students in tertiary education in Britain, from technical college to university). I hope in this paper to show that the two professions have a large number of areas of concern and development in common, and that there are benefits to the ESP profession through greater contact with the Communication Skills profession (referred to from now on in this paper as CS).

By way of preamble I should like to make three points:

1 I myself am by training and experience a teacher of ESP. But my interest in CS arises from additionally teaching CS to two groups of British students at Aston – undergraduate engineers, and PhD students taking part in an Interdisciplinary Higher Degrees Scheme. My interest also stems from having attended CS conferences at Sheffield City Polytechnic in recent years, and from being an examiner in CS for a British engineering institution.

2 I am certainly not suggesting that all is well in CS, and that all is not well in ESP. One could equally make observations on what the CS profession might learn from developments in ESP. For example, the current Nottingham-based Schools Council Project *Reading for learning* (1979) is L_1 ESP in all but name.

3 CS and ESP both encompass wide differences in teaching materials, institution aim, practices, etc. Therefore inevitably my comments are of a generalised nature.

My thoughts on what ESP might learn from CS fall into two main areas: first, overall comparisons concerning three main threads of development; and second, instances of practice in CS that I have found beneficial in my own recent ESP teaching.

With regard to overall **comparative threads of development** between CS and ESP, the first difference to note concerns the **training and background**

of the teacher. In CS, teachers come from a wide spectrum – including education, psychology, linguistics, literature, sociology, L_2 teaching, etc. But in ESP, it is increasingly common to read advertisements and job specifications which require applicants to have an MA in Applied Linguistics, a year's experience of teaching in a developing country, and experience of materials writing. I am not denying the importance of certain of these parts of the job specification package in certain situations; nor am I denying the contribution that training in applied linguistics has made to ESP, and in professionalising ESP. But I am suggesting that a profession that takes an increasingly narrow, self-perpetuating perspective as to the education and experience that its practitioners should have, is in danger of straight-jacketing itself. In particular, it is in danger of not having within itself the self-critical, self-correcting voice that all professions need. I am certainly not advocating an 'all-comers' policy with regard to the filling of vacancies. But I am advising that there are lessons to be learnt from the rather wider recruitment attitudes of CS. At the chalkface, such personal attributes as enthusiasm, the ability to develop and administer a course, work-rate, rapport, and a knowledge of the students' world are equally as important as the ability to write teaching materials or perform a Munbyian needs analysis. I would therefore like to think that ESP is large enough, and confident enough, to encourage applications from (for example) a practising engineer who has worked overseas, a lecturer in management with experience of teaching foreign students, an educational technologist with a commitment to communication problems, etc. My argument is that a regular inflow of a small number of such people is necessary in ESP, just as it is in CS, in order to offer differing perspectives on developments within the profession.

The second comparative thread I would draw concerns teaching materials. ESP teachers who have attended recent conferences in CS will know that the publishers' bookstalls at such conferences contain (ironically) few books concerned with the teaching of CS. Instead, about 90 per cent of the books on display are ESP books. There are three possible inferences one might draw. The first is that CS produces insufficient textbooks, so that there simply are not enough published materials to display. The second is that the market for ESP textbooks is presumably larger than for CS textbooks. But perhaps the third inference one might draw is that ESP is becoming over-dependent on written teaching materials – published or home-grown. Swales (1981) has commented recently on what he regards as the textbook problem in ESP – his thesis being that '. . . ESP textbooks have been in many respects an educational failure'. Swales attributes the textbook problem to a number of interlocking factors, and concludes by making a persuasive case for a new generation of ESP textbooks, a major part of that case being that '. . . the external materials would not be hermetic, but would be designed

in such a way that local inputs would not only be encouraged but would also be essential'. To develop this line of thought further by returning to practices in CS (where we have noted less reliance on published teaching materials), CS appears to rely more heavily on, and to be more integrated with, the actual study and professional situations that the student meets the other nine tenths of his time. And it does this, in many instances, by attaching itself to a comprehensible (to the CS teacher) part of the student's specialist area, therefore with far less use for a hermetically-sealed external course. CS is taught, then, against the backcloth of greater integration with the student's specialist area, and with a more visible goal. To return to ESP and the Swales vision of a new generation textbook in which local inputs would be essential – I would go one step further and suggest that perhaps what ESP also needs is a **practitioner's manual**. This would not be a further 'collection of ESP articles' practitioner's book, but a manual which would encourage rather less reliance on written teaching materials – either hermetically-sealed published textbooks or internal English department-produced local materials – but would demonstrate ways in which comprehensible bits of the student's **actual** specialist studies can be taken over and used as the base for part of ESP teaching. Recent years have seen welcome signs of such a development – as in the team-teaching approach emanating from Birmingham. But I suggest that CS has experience and insights in this area that could well be of additional benefit to ESP.

The third thread of comparison I would draw between CS and ESP is the **terminal goal** in each case. Situations vary, of course, but it does seem to me that we have a recurrent problem as to the visible goal of a course in ESP: a problem both in Britain and overseas. In Britain, the frequent absence of any examination or assessment requirement that is comparable with that in the student's specialist subjects means that motivation, attendance and completion of assignments in English frequently suffer. And this in turn affects the motivation of the teacher. In the overseas ESP situation, more commonly students have to 'pass' English in some form or another. But failure is rare; and in borderline cases, pressure is often put on the English department to 'up' the English grade or mark where the student is satisfactory in all his other subjects.

This problem seems to have been overcome rather better in CS, in that it is more commonly an integral part of the student's overall course – whether BEC, TEC or a degree. Thus CS, although it still has the same service function as ESP, has more commonly an integrated, internal service function, rather than the external service function common in ESP.

What are the reasons for this lack of a terminal goal in ESP? Perhaps part of the reason lies in the comparatively low status and self-esteem of ESP

teachers in relation to their colleagues in the same institution. And perhaps this in turn is partly attributable to my two earlier points – first, the narrow base from which ESP teachers are currently recruited, which gives us an 'isolationist' image in the eyes of other departments in the same institution, and which makes it increasingly difficult for us to speak the same language. And second, perhaps low status and self-esteem are also partly attributable to insufficient contact with our students' actual study and professional requirements, and this becomes obvious both to the student and to teaching colleagues in the students' specialist departments.

As to the answer to a lack of a terminal goal, in the overseas situation I am sure a large part of the answer lies with the institution as a whole. Vast sums of money are poured into English departments in many overseas institutions – in staff and in equipment. (And that investment is now increasingly being called into question). Yet the institutions' attitude to ESP is ambivalent. On the one hand it expects a return for its investment in terms of markedly increased English standards so that the student will have no difficulty coping academically and professionally. But on the other hand it frequently withholds the very means of achieving that aim, by not insisting on equivalent assessment standards as in the students' other subjects. Another part of this question, of course, lies in the ESP teacher's frequent antipathy to examinations or other forms of assessments, which in turn is attributable to the base from which ESP teachers come, and therefore the absence of a different perspective on assessment within the overseas English Department. Whatever the reasons for this state of affairs, I am convinced that if ESP is to prosper overseas, then both the institution and the English Department will need to re-examine their current attitudes, and that English teaching will need to fall more closely in line with institutional and national practices, requirements and goals.

With regard to ESP in Britain, I suggest we should not overlook certain obvious points. For example, I suggest that it matters what we call what we teach, and that an upmarket name like **Professional communication skills for factory inspectors** is more likely to attract the 35-year-old inspector from Bangladesh than the bald title **English**. Similarly, I suggest that it matters **where** we teach what we teach, in that the ESP teacher is more likely to be regarded as having a contribution to make to the training of overseas factory inspectors if he plies in his trade in the health and safety seminar room, than in an impersonal room in the English department. It matters, too, that the ESP teacher is seen treading the corridors in the student's specialist department, attending staff-student seminars, advising on the English of examination questions. It matters that English has its fair share of 'socially-acceptable' timetable hours, and is not permanently relegated to late Friday afternoons. And it matters that the English taught is seen by the

student to be couched in a part of his **actual** syllabus – a part either approached in English classes via a different angle than in his specialist studies, or earmarked 'for English treatment only'. The answer to the lack of a terminal goal in ESP may well be of a different nature than in CS. I can only point to this further difference in practice as between the two, and to suggest that ESP may well have something to learn from CS.

Having discussed, then, three overall comparisons as to threads of development in CS and ESP, I should like to offer **instances of practice** in CS that I have personally found beneficial in my own ESP teaching. The first concerns a classroom situation, the second concerns teaching materials, and the third concerns teacher education.

Last year at Aston, as a development from part of a CS course we gave to British PhD students, we taught for the first time an 'oral presentations' course to a group of overseas students. I am not suggesting, of course, that oral presentations are new to ESP. However, the manner in which we ran the course, and our overall aims, were certainly new to us at Aston. Our aim, briefly, was not to teach English at all. Instead, our aim was to teach the overall communicative skills of a formal oral presentation. We adapted the checklist approach used in CS, which requires the rest of the group, immediately the presentation is finished, to assess the presenter's standards in organisational areas such as initial indication of theme and angle, staging of key points and signposting. Assessment was also in terms of technical aspects, such as voice quality, eye contact, visual aids, and speed of delivery. The remarkable thing to us was the way in which certain students weak in terms of language, quickly learnt to compensate for their language deficiencies by strengthening their skills in organisation and technique. By taking the spotlight off **language**, then, and by putting it on **communication**, students built up their communicative strengths in order to balance out their linguistic weaknesses.

A second recent influence from CS on my teaching is in an aspect of teaching materials. ESP 'information transfer' exercises are also common in CS under the more appropriate title, I think, of 'data analysis and comment'. In ESP, the approach is very often a 'guided' one of requiring the student to answer associated questions, or to use certain functional patterns in order to build up an accompanying text. In CS, the approach is very much to 'encourage our students to focus on what the data **imply**. We urge them to look for comparisons, contrasts, increases, decreases, trends, relationships, proportions, causes and effects. We emphasis the need to focus on **why** as well as on **what**, and to show what conclusions and recommendations are implied by the results' (Kirkman, 1978). By fusing the ESP linguistic approach with the CS **implication** approach, I find that my own teaching materials in data analysis and comment are now more interesting, challenging and realistic.

My third and final example of how contact with CS has helped my own teaching is in the field of teacher education. At the 1980 Sheffield City Polytechnic CS Conference, I took part in a workshop on study skills, and re-encountered the Open University (Gibbs, 1977, and Northedge, 1975) small group study skills approach. Briefly, the approach entails students working first individually, then in pairs, then in double pairs, and finally as a whole group, to consider aspects of a study skill in an increasing order of complexity or probable difference of opinion. It so happens that I was going overseas the following month to run a British Council ESP teacher education course, and it occurred to me that I might adapt the Gibbs and Northedge study skills approach to ESP textbook analysis and evaluation. This I did, by preparing four different stages of questions, the first stage to be considered by teachers individually, the second in pairs, the third in double pairs, and the fourth as a whole group. An example of a question in the first (individual) stage simply required the teacher to identify the overall purpose of the textbook. A question in the second (paired activity) stage required the teachers to discuss the understandability of question rubrics. A question in the third stage required double pairs of teachers to discuss the appropriacy of the exercises to the needs of students in their own institutions, and the fourth (whole group) stage was very much a participant-led blackboard summary of the book, under headings such as strengths, weaknesses, appropriacy to institution needs, ect. As compared with the more common standardised 'checklist' approach in TAE, some of the advantages of this four-stage approach were that the questions could be textbook-specific; there was a great deal of idea-pooling and information-sharing; and one ended not with a depressingly long negative list of the book's faults, but with a balanced view of its strengths, weaknesses, locally-adaptable methodology, etc (Williams, forthcoming).

These, then, are three recent instances in which I feel that my own teaching in ESP has benefited through my rubbing shoulders with CS.

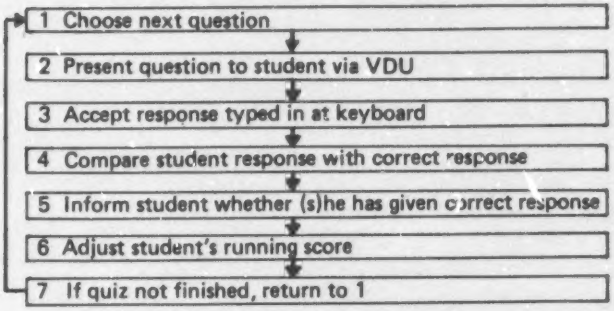
May I conclude, then, by reiterating that I am sure there are many points of contact between the two professions; that we share common problems, and that knowledge of each profession's answers to those problems may well be beneficial to the other profession; and that in matters of course design, methodology, research and development there are overlaps where greater contact will almost certainly yield more fruitful results.

THE USES OF AN ANALYTIC GENERATOR: THE COMPUTER AS TEACHER OF ENGLISH FOR SPECIFIC PURPOSES[1]

T F Johns, University of Birmingham

The development of the microcomputer in the latter part of the 1970s has made available to the ESP teacher tremendous computing power at relatively low cost. Starting from a general discussion of the use of the computer as a learning/teaching device, this paper examines its potential in the teaching of English for Specific Purposes with special reference to work in the English for Overseas Students Unit of Birmingham University in 1980/81. It is suggested that of the various techniques available, that of 'generation by analysis' may be of particular value in compensating for the lack of flexibility in non-computerised ESP materials, and ongoing work in the Unit employing this technique is described.

The essential function of the computer is to process information. It accepts information from the outside world (standard human input being via a keyboard), operates on it in a predetermined fashion according to the instructions contained in a program, and then outputs the processed information (standard output for human recipients being via a visual display unit, or VDU, resembling a television screen). This input/output procedure is, in effect, a form of interaction. In teaching, one of the most fundamental types of interaction is the question-answer-feedback exchange (Sinclair and Coulthard, 1975). The computer may model a sequence of such exchanges in the form of a quiz as follows:

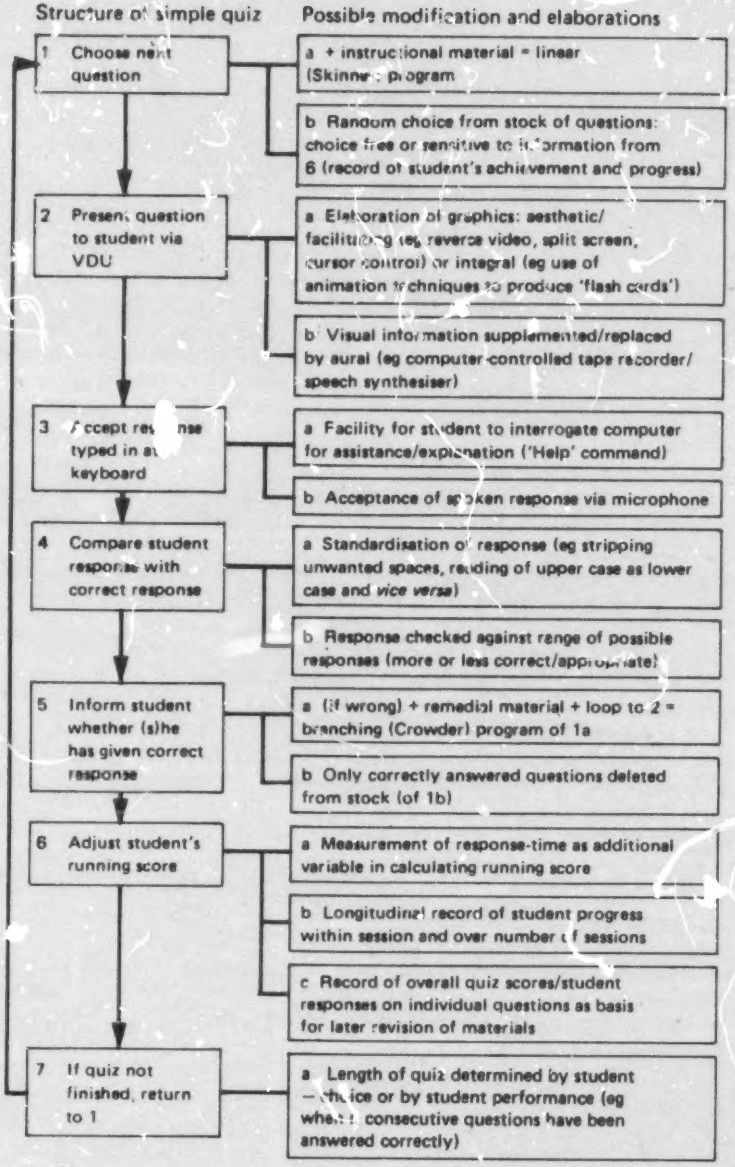

1 Choose next question
2 Present question to student via VDU
3 Accept response typed in at keyboard
4 Compare student response with correct response
5 Inform student whether (s)he has given correct response
6 Adjust student's running score
7 If quiz not finished, return to 1

[1] My thanks are due to many friends and colleagues for their help with the work reported in this paper: in particular to Peter Dodd for teaching me ATOL, to Peter Skehan and Jem Clear for programming assistance, and to Roz Ivanic, Maria Horsella and Dave Willis for their helpful comments on an earlier version of the paper.

Given a simple quiz-structure of this type there are no serious problems in the way of getting the computer to act as teacher – though even a novice programmer should have some idea of file-structuring and file-handling, and fairly sophisticated techniques may be required if a large number of questions and answers are to be packed economically into limited memory space. Generally speaking, however, the limiting factor is not the technological mysteries of the computer, but rather the quality of the programmer's ideas and the imagination she brings to the pedagogic task.

The significance of quiz-structure in the present context is that this structure and the assumptions it makes (teacher control, questions with one correct answer) are fundamental to the majority of work done in computer-assisted instruction. What distinguish the different approaches to CAI are, in the main, the points at which that structure is modified or elaborated. The diagram overleaf shows some of the possibilities that are most relevant to the present author's work.

Some of these elaborations and modifications require more complex program structure, and greater technical command over the resources of the computer: for example, string manipulation (4a), maintenance and updating of records (6b and 6c), screen control and the handling of graphics (2a) and interfacing with peripheral devices (2b), and analogue-digital conversion (3b). Should the practising language teacher be expected to tackle or even be aware of such matters if he is to develop his own CAI materials? There is a strong school of thought that he should not: among the solutions that have been proposed are high-level programming languages such as PILOT specifically designed for CAI (see Gerhold, 1980) and packages such as FAG (Last and King, 1979) which require the teacher to do little more than supply questions, answers and remedial material. As it happens, we have adopted neither of these approaches in our work in Birmingham. I did not, when I started, have available a suitable high-level language specifically designed for CAI, and it was clear that the package approach would be over-restrictive in the use that could be made of the computer. We have, accordingly, attempted to meet the problems of CAI head-on using general-purpose high-level languages, and trying to solve problems as they occur. Finding out how the computer could be made to dance to our tune has often been a frustrating business – but it has also been and remains a fascinating one, and I believe that our ignorance of most other work in CAI (an ignorance partially dispelled in the course of preparing this paper) was, on balance, an advantage, since there was no temptation to accept other people's ready-made solutions.


Structure of simple quiz
Possible modification and elaborations
1 Choose next question
a + instructional material = linear (Skinner) program
b Random choice from stock of questions: choice free or sensitive to information from 6 (record of student's achievement and progress)
2 Present question to student via VDU
a Elaboration of graphics: aesthetic/ facilitating (eg reverse video, split screen, cursor control) or integral (eg use of animation techniques to produce 'flash cards')
b Visual information supplemented/replaced by aural (eg computer-controlled tape recorder/ speech synthesiser)
3 Accept response typed in at keyboard
a Facility for student to interrogate computer for assistance/explanation ('Help' command)
b Acceptance of spoken response via microphone
4 Compare student response with correct response
a Standardisation of response (eg stripping unwanted spaces, reading of upper case as lower case and *vice versa*)
b Response checked against range of possible responses (more or less correct/appropriate)
5 Inform student whether (s)he has given correct response
a (If wrong) + remedial material + loop to 2 = branching (Crowder) program of 1a
b Only correctly answered questions deleted from stock (of 1b)
6 Adjust student's running score
a Measurement of response-time as additional variable in calculating running score
b Longitudinal record of student progress within session and over number of sessions
c Record of overall quiz scores/student responses on individual questions as basis for later revision of materials
7 If quiz not finished, return to 1
a Length of quiz determined by student — choice or by student performance (eg when 5 consecutive questions have been answered correctly)

There is one other point that might be made here, and that is that even if CAI remains at the level of the 'elaborated quiz', the cumulative effect of many of the possible elaborations is to give the computer its own distinctive characteristics as a teacher. Some of these are machine characteristics: for within its limitations, the computer can be more observant, more sensitive, more consistent, more available and more unwearingly patient than any conceivable one-to-one human teacher. On the other hand, the computer may display marked human characteristics, deriving entirely from the teacher/programmer and the extent to which the program reflects his teaching approach and personality. Thus the computer may show all the good – and the bad – qualities of human teachers: their humour, quirkiness, sympathy, over-optimism, stubbornness etc. Writing of her remedial English programmes, Thames (1973), for example, says: 'The computer responses personify the machine as impatient, egotistical, and sometimes reluctantly supportive of right answers . . . the idea is to imbue the terminal with human characteristics, so as to dispel the notion of machine perfection, control and total logic'. Where the purpose of a program is to teach a foreign language, and that language is itself the medium of instruction, the ability of the computer to handle the verbal interaction between man and machine in a plausible fashion takes on a particular significance. This is in part a matter of getting it to recognise when to say something – eg:

'you're almost there'	(student response almost correct)
'That's better'	(correct response after incorrect response)
'Had enough?'	(student exceeds criterion time for session)
'Like some help?'	(student exceeds criterion time for question)
'You're a genius!'	(student gets 100 per cent score)

and in part a matter of programming is to vary how something is said according to the situation. It is, for example, a characteristic of human communication that as we get to know someone better, and as communication becomes more predictable, linguistic realisations of speech functions will tend to become more elliptical (Brown and Levinson, 1978). We may get the computer to simulate this linguistic 'snuggling up' by giving it the possibility of progressive deletion of elements of clause structures as it gets to know the student. The following three-stage snuggle-up routine offering the student another turn gives four possible verbal realisations at the first stage, eight at the second stage, and ten at the third:

1st stage	{ Do you want to / Would you like to }	{ try again? / have another go? }
2nd stage	{ (Do you) want to / (Would you) like to }	{ try again? / have another go? }
3rd stage	{ ((Do you) want to) / ((Would you) like to) }	{ try again? / have another go? }

It is hoped that what has been said about the 'elaborate quiz' will show that it has considerable potential power as an approach to CAI in general and to the teaching of ESP in particular. In the work of the English for Overseas Students Unit, certain elaborations have been put to one side, at least for the time being (eg the development of traditional Skinner and Crowder teaching programs); it was assumed that others should be incorporated from the beginning (for example, using information about the student's running score to keep the program 'in phase' with his progress, and giving the computer a 'sophisticated' interactive teaching repertoire), and we are currently experimenting with others (eg the timing of student responses). At the same time, it is clear that the elaborated quiz as described above has certain limitations for our purposes. In the first place, there is a tendency of much CAI in foreign-language teaching to resemble the more unimaginative type of traditional exercise, to be sentence or even word based, to be low in authenticity, to be based on language usage rather than language use (Widdowson, 1978). Despite certain glowing exceptions (for example, the work of Brian Farrington at the University of Aberdeen – see Leather, 1981) these criticisms seem to apply to most reported CAI materials on both sides of the Atlantic, and particularly to those which have been 'package-prepared'[2]. Secondly, and more seriously, there is the problem of the lack of flexibility of the elaborated quiz: it would be impossible to provide for the wide range of ability, learning problems, subject problems, and particular interests to be expected in the typical ESP teaching situation without an inordinate amount of programming time. Consequently, we have in all our work and plans set ourselves the following goals in developing the potential of the computer as ESP teacher:

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[2]The criticisms are not restricted to CAI in language-teaching: 'There is a glimmering, but thankfully growing, awareness of the fundamental pedagogic shortcomings of much computer-based learning . . . (teachers) have been seriously turned off by the educational and intellectual poverty of drill and practice CAI. These applications do little more intellectually demanding than computerised programmed learning routines which are more appropriate to a training environment' (Anderson, 1981).

1 Priority should be given to the materials based on tests longer than the simplex sentence or the isolated word.

2 Programs should be made as game-like as possible, the student being challenged to pit his wits against the computer. In general, the gaming and simulation applications of the computer seem to offer more inspiration for ESP than do more conventional forms of CAI. (See Ahl, 1975).

3 More importantly, the instruction should be computer-generated, in the sense that questions or problems should not be constructed by the programmer in advance and placed in the program: they should, instead, be constructed by the computer itself in response to the moment-by-moment state of play between itself and the student (cf Koffmann and Perry, 1975, for an interesting discussion of the principle of generation in CAI).

Two basic strategies for the generation of language-teaching materials have emerged in the course of the work: the first might be called **generation by synthesis**, and the second **generation by analysis**.

The possibility of generation by synthesis is an idea that must strike many people encountering for the first time the ability of the computer to select elements randomly within a 'slot-and-filler' (substitution table) structure. The idea is by no means new: it is paralleled in the seventeenth and eighteenth centuries by such diverse examples as a machine for the mechanical production of Latin hexameters, and the fascination for Mozart and other composers of his time of the assembly of music by the throwing of dice and other random mathematical procedures (Einstein, 1944, p. 36). Most strikingly, it was parodied by Swift in the description of the linguistic researches undertaken by the 'projectors in speculative learning' of the grand Academy of Lagoda (Swift, 1976, pp. 227-30). In terms of the twentieth century computer, the best-known application has been the automatic generation of poetry (see again Ahl, 1975), using the method originally proposed by Peters (1978) and ridiculed by Steele in the *Spectator*, No 228. Synthetic generation has also been used in some CAI materials: at word level, for example, in Gerald Culley's 'Verb Factory' on the PLATO system at the University of Delaware (Hunter, 1980, p. 129), and at sentence level for Russian by Greville Corbett at the University of Surrey (Corbett and Rovers, 1980). Closing my ears to the echoes of Swift's laughter, my own first feeble effort in this direction was the program *Insult* written in BASIC on the University's DEC20. This used a simple three-slot substitution table with the structure **instruction** + 'you' + **adjective** + **noun** (typical text: 'get lost, you slimy creep'), 'to teach you the sort of English which your teacher

may not know or which he may be embarrassed to tell you'. This was followed, far more ambitiously and rather more seriously by a program – working but not fully elaborated – entitled *Connector* which generates two-sentence texts at increasing levels of difficulty using a context-sensitive slot and filler grammar, scans each generated text for the logical relationship between the two sentences, and presents a selection of logical connectors to the student, who has to choose the most appropriate in context. It appears that the techniques developed for *Connector* would make it possible to generate many millions of even longer apparently meaningful texts: whether the inherent absurdity of such an enterprise would be counterbalanced by its pedagogic value (or, indeed, its entertainment value) could, perhaps, remain for the time being an open question.

No such lurking doubts, however, attend the method which I call generation by analysis: it is, indeed, only this method which seems capable of meeting ESP's need for flexibility, and thereby justifying the considerable investment of time and equipment required by CAI. The method depends on the interaction between files of texts, and programs to perform operations on text. For the programs written so far and planned for the future, the only restriction on texts is that they should not be longer than can be comfortably accommodated on the screen of the VDU. Otherwise they may be selected or constructed on any principle the teacher or student wishes, whether that be subject matter, linguistic level, or rhetorical organisation. Indeed, so flexible is the method that providing any problems associated with the writing system (for example, diacritics) can be overcome, analytically generative programs may without modification teach other languages than English. This is because in my work to date I have been concerned with purely automatic analysis and manipulation of text: analytic operations including the division of text into words (identified by spaces) and into syntactic chunks and sentences (identified by punctuation marks), and the measurement and comparison of the text elements thus isolated; and manipulations comprising various types of text degradation, in particular re-ordering and deletion. In other words, the work has not relied on any form of parsing. If and when a reliable and convenient computer program for the automatic parsing of English becomes available, generation by analysis will have a powerful new weapon in its armoury: however, as I hope the present paper indicates, there is a good deal that can be accomplished in the absence of a parser.

The first – and, at the time of writing, the only completed – program using this technique is *Jumbler*, a compendium of three gambling games which are based on three different principles of re-ordering, and which taken together offer unlimited practice at all levels of structure of written English, from spelling through to the overall organisation of text.

Jumbleword

A text is randomly selected from the file chosen: a word (maximum and minimum length determined by the student's running score) is randomly selected within the text, withdrawn from it, anagrammed, and replaced. The student is offered odds based on the length of the jumbleword: (s)he has to find it, and type it in correctly, using context to help in finding the correct answer.

Jumblechunk

A text is randomly selected, and a chunk (that is, a string delimited by punctuation marks, maximum and minimum length determined by the student's running score) is randomly chosen within the text. The words in the chunk are scrambled and replaced. The student is offered odds based on the length of the chunk; (s)he has to identify it, and type the original unscrambled form.

Jumbleparagraph

A text is randomly selected (maximum and minimum length determined by student's running score). The sentences are randomly reordered, each sentence being numbered in the scrambled versions. The odds offered depend on the number of sentences in the paragraph: the student has to work out and type the correction order. This game reflects an increased interest in the significance of ordering of sentences in text and the ability of native speakers to restore scrambled text (see, for example, Harper, 1965, Winter, 1966, and Hoey, forthcoming), while scrambled texts have been used in the teaching of reading strategies for English as first language (Aaron *et al*, 1971; Davies *et al*, 1980) and as second language (for example in the UMESPP materials described in Chitravelu *et al*, 1980). Earlier CAI work using scrambled text is reported by Thames (1973), although it appears that in that case the scrambling was not carried out by the computer.

The program chooses randomly between the three games, with a slight bias in favour of the third. A complete games-session comprises ten passes through the program.

The first version of *Jumbler* was written on the DEC20 in ATOL, a text-oriented language with powerful data-structuring facilities (Axford *et al*, 1978). It proved very popular during our presessional English language course for arriving overseas students in September 1980. As had been hoped, the gambling element proved highly motivating, and students were prepared

to put a lot of effort into finding the correct answers. With *Jumbleparagraph* for example, they were so determined to check that their chosen order read plausibly that some went so far as to write out different versions in long-hand; this strongly suggested that a future re-write of this game should incorporate a form of 'scratch pad' in order to allow students to experiment with different orders on the screen. A further observation was that although in writing the program I had anticipated single students playing against the computer, in practice they preferred to play in pairs, the resulting discussion of the texts and of the possible answers clearly had a beneficial effect (cf Simon, 1974). In view of this encouraging and instructive trial, it was disappointing to discover that during term-time the program ran unusually slowly owing to time-sharing pressure on the DEC20. To overcome this problem, and to make the materials more transportable, Peter Skehan has written versions of two of the games in M BASIC to run on a micro-computer (the department's Zenith Z89): we anticipate most of our future work in CAI being in micro rather than mainframe.

Plans for the development of CAI in 1981/2 centre on the idea of generation by analysis. They include programs with the following provisional titles:

Blanker: a sister-program to *Jumbler*, being a compendium of three games based on different principles of word-deletion (nth item; word-length; previous mention).

Flasher: a program based on timed 'flash card' presentation of text, and words and phrases from text.

Masker: text presented with sections heavily masked (random choice of principle underlying masking). The student is challenged to answer a simple question requiring a one-word answer: (s)he may progressively restore the missing sections of text before attempting an answer, but in so doing worsens the odds (s)he is offered.

There are, in addition, certain refinements to CAI which we should like to look into, although each of these would require a considerable investment of time and effort to investigate fully. They include, in order of priority:

1 The inclusion of a self-adjusting element in the above programs. The comparison is with a chess-playing program which has the ability to learn from its own mistakes and to adjust its strategy accordingly. As an example of what might be possible, it should be feasible to incorporate in *Jumble-paragraph* a routine which would keep a record of the relative difficulty of different texts, and use that information to update automatically its grading of those texts on a basis other than length. The results across a number of

different programs of such 'automatic grading' could, of course, be of some practical use and theoretical interest.

2 An investigation of the application in CAI of the 'language transfer' (or 'mixed texts') approach to language teaching (Schaefer, 1963; Burling, 1978). Microcomputer-generated LT might start by training the student to read and understand target L_2 texts translated automatically into 'pseudo-L_1' using a one-to-one dictionary. The computer could then transfer the student from this pseudo-L_1 by progressively substituting the original L_2 words for the translations until (s)he was reading completely undoctored L_2 text. There would be a number of technical problems to be solved in adopting such an approach – for example fitting a dictionary of adequate size and accessibility into the memory available on a microcomputer, and developing a reliable method to deal with inflexions in the L_2. On the other hand, computer-generated LT would have a number of advantages over teacher-prepared LT materials. In the first place, it would obviate the considerable 'mechanical' effort involved in preparing texts and ensuring consistency of substitutions. Secondly it would be more flexible: not only could the student choose the type of text towards which he wished to work, but the same program and set of texts could cater for speakers of any L_1 for whom a one-to-one dictionary (stored on a separate floppy disk) has been prepared. And thirdly, not only could it be more sensitive to student progress, but the student might even be given the possibility of controlling the principle on which substitutions were made (eg with or without L_2 glosses).

3 A blurring of the distinction between 'research programs' and 'teaching/learning programs'. What I have in mind here is an interactive program which would give the language-learner a 'user-friendly' tool for investigating problems in the target language – for example, the use in context of a problem word, or the vocabulary of a certain type of text. At Birmingham we would probably start by investigating how far such a program could be based on the CLOC package (Skehan, this volume).

In thinking about CAI and making a start on putting some of those thoughts into practice we have felt ourselves to be very much in uncharted territory. It is, perhaps, significant that a literature search has revealed only one previous reference to CAI in a SELMOUS-style situation: a hope that oral practice in the classroom and language laboratory for overseas students at the University of Leeds might be complemented by practice at the computer to develop reading and writing skills (Fox, 1969). The work reported and the ideas put forward in the present paper undoubtedly only scrape at the surface of what is possible, although they probably go as far as and possibly further than what is practicable within existing resources and the capabilities of spare-time computer novices such as ourselves.

ESP TEACHERS, COMPUTERS AND RESEARCH

P Skehan, University of Birmingham

Introduction

The theme of this SELMOUS conference being the ESP teacher, I would like to make it clear from the outset that this chapter will not be a wide-ranging and comprehensive review of the uses of computers but a selective examination of their relevance to the teacher of ESP. The attempt will be made to show how the average ESP teacher can make use of electronic computers fairly easily as an almost routine part of his work. This chapter, and the one that precedes it by Tim Johns, will form a sort of record of the way in which two individuals have been able to acquire sufficient expertise with computers over a relatively short period to be able to use them to some purpose. The level of knowledge attained is low in comparison to that possessed by the average computer scientist. However, the point being made is that relatively little knowledge can still mean that a powerful tool can already be controlled sufficiently to produce interesting results. The underlying theme of the chapter will be, then, that computers are not arcane instruments beyond the capabilities of humanities trained ESP teachers but rather easily accessible machines of tremendous power that yield dividends at whatever beginning level of expertise they are approached.

There are three main sections to the chapter. First of all there is a brief description of the types of computer. This is intended as an orientation for the rest of the chapter. Then a short section examines two recent applications of computers at Birmingham which are relevant to SELMOUS teachers — test analysis and the compilation of specialised bibliographies. Finally the main section of the chapter is concerned with the development of specialist wordlists, in this case an economics wordlist.

Types of computer

Broadly speaking computers can be divided into three types — mainframes, minicomputers, and microcomputers. Mainframes are the very large capacity, high speed machines possessed by large institutions and universities. They allow a large number of users to work simultaneously, usually from computer terminals in individual departments, remote from the computer itself, but connected to it by telephone lines. Mainframes, particularly in the multi-user context of a university, are also characterised by the availability of 'packages'. These are general purpose suites of programs in various areas, eg statistics or text analysis. Such packages are generally designed for

novice users. They presuppose minimal knowledge of computing, certainly knowledge of programming is not required. Packages operate by means of keywords which are mnemonics for the operations the user wishes to perform eg PEARSON.CORR in SPSS (Nie *et al*, 1975) to produce correlations, or WORDLIST to produce just what it says, using OCP (Hockey, 1981). The main part of this chapter will, in fact, be based on the use of one such package, a text analysis suite of programs called CLOC (Reed, 1978).

Somewhat smaller than mainframes are minicomputers. (Making distinctions between the various types of computer is fairly hazardous, since the speed of technological developments often makes such categorisations obsolete.) Minicomputers are really scaled down versions of mainframes. They are normally not so large or fast, tend to support fewer users simultaneously, and may have fewer packages. Microcomputers, finally, contrast fairly clearly with mainframes and minis. They are much smaller and slower, and in addition they are likely to have fewer packages available, with the packages that can be obtained tending to concentrate on word processing or games. However these disadvantages are often outweighed for many purposes by the fact that microcomputers tend to be controlled by individuals, with the convenience and familiarity that this implies being a very telling factor indeed.

Using computers – test analysis and bibliographies

I turn next to a consideration of the various ways in which ESP users may use computers, drawing, during the course of this discussion, on the description of computer types given above. There seem to be two broad types of use – the development of teaching materials, and research. The former activity is likely to be linked with microcomputers, with the teaching materials contained on floppy disks, either in the form of a game or perhaps some structured presentation. The chapter by Tim Johns (this volume) exemplifies this use of micros.

Research, in contrast, is likely to involve mainframe computers. It can, of course, take many forms. We will briefly consider two possible computer uses before turing to the main subject of the paper – the development of wordlists. The first way in which computers were used at Birmingham in a manner relevant to the SELMOUS teacher was to expedite the task of test and item analysis. Using the mainframe computers – a DEC20 and an ICL 1306A – the Statistical Package for the Social Sciences (SPSS), (Nie *et al*, 1975) was used to investigate which of the questions on the 130 question four-way choice Birmingham Assessment and Diagnostic Test, our general purpose test administered to all newly arriving overseas students (Johns,

1980), were the most effective. The task, which drew on over 1000 answer sheets, would have been prohibitively time consuming if tackled by any means other than the computer. In the event, the simple conventions of the SPSS package allowed the work to be carried out quickly and easily. Somewhat contrary to expectation it was found that many of the commonest items types – dealing with tenses, modals, prepositions, the article system etc – were rather ineffective whilst the seemingly unpromising area of transitivity, including monotransitivity, ditransitivity and complementation generated much more reliable items and scales. A fuller account of this work is given by Johns and Skehan (forthcoming).

The second brief point on the research use of computers derives from the work of Michael Hoey, a colleague at Birmingham, and Blanca de Escorcia, of the University del Valle, Colombia. They are in the initial stages of establishing a computerised bibliography of material in the areas of ESP and discourse analysis to be run jointly by a number of institutions. Bibliographic references will be input to the computer system – mainframe initially using a package called FAMULUS (Hockey, 1978), but later on microcomputers. The references will then be retrievable on the basis of a keyword coding system. By this means, system users should, by some time in 1982, be able to specify keywords and obtain sets of references, together with article abstracts, which satisfy the keywords used. It is planned that considerable detail of keywording will be built into the system, so that searches of great delicacy will be possible. The advantages of this, particularly in being able to retrieve information of a precise sort on teaching materials, are manifest for the ESP teacher. A great deal of time and effort has been spent recently in various parts of the world producing courses for highly specific groups of learners. Some of these courses may have overlapped considerably. It is the intention of the computerised bibliography project to input relevant details of as much of this material as possible. If this can be done it will have considerable impact on the nature of ESP projects, since it will represent the most systematic attempt yet of combating the transitory, evanescent nature of much ESP work. ESP teachers will simply have to specify which keywords they want used as the basis for a search in order to receive a list of relevant references and associated abstracts. As a result unnecessary duplication should be much easier to avoid, and the efficient exchange of information facilitated.

Using computers: wordlists

These two uses of mainframes have been mentioned only as indications of the sorts of ways ESP teachers can use computers. The remainder of this chapter will describe a third project – the development of wordlists – in much greater detail.

The main thrust of ESP work recently has been towards the analysis of the communicative functions of language, and the implications of this for ESP teaching (Munby, 1978; Widdowson,1978). This contrasts with the register approach to language analysis which was more influential some ten to fifteen years ago (Robinson, 1980). It can be argued (see eg Skeldon, 1978) that the emphasis on communicative function in recent years has been too great, detrimental in fact to the production of language teaching materials. The research to be presented here is based on similar misgivings regarding the lack of register based studies which could provide potentially useful information to ESP course writers and teachers.

In particular the need for a more systematic treatment of vocabulary teaching is thought to be absolutely fundamental. This is for several reasons:

1 ESP teaching, like all language teaching, benefits from grading. The unsystematic introduction of lexical elements is likely to be confusing and discouraging for the ESP student (Skeldon, 1978).

2 An effective vocabulary component for an ESP course accords with the needs and expectations of many students. As a result vocabulary teaching materials are attractive to the average ESP 'customer'.

3 Although we lack a detailed and fully elaborated model of language comprehension, some practical attempt must be made to characterise the comprehension process and develop comprehension skills in students. Recent studies in psycholinguistics (see Clark and Clark, 1977, Chapter 2 for a review) and linguistics (Winter, 1977; Hoey, 1979) suggest that lexical factors are basic to the comprehension process. Understanding may be derived by means of semantic processing strategies which aid in the building up and recreation of utterance meaning using guesses based on some of the utterance's lexical elements (Clark and Clark, 1977, pp. 72-9). Effective vocabulary teaching would be a prerequisite for this, since it would provide a foundation for the operation of such semantic strategies.

4 Related to the previous point, it is one of the goals of the language teacher to develop reading fluency. This is impossible if the number of unknown lexical elements in a passage is too great. The reader can handle a certain amount of unfamiliar material but reading processes break down and degenerate into puzzle solving when this unknown material exceeds a certain percentage (Bright and McGregor, 1970). Effective vocabulary teaching is again required to avoid these pitfalls.

5 If we examine the types of words which cause difficulties to students, two groups emerge with great consistency – the sub-technical vocabulary

(Roe, 1977) which is common to large numbers of academic disciplines, and the specialist vocabularies associated with particular subjects. Each of these could form the basis for ESP teaching. In the former case this is clearly so, since the ESP teacher can use his language skills to prepare materials to teach these common core words which are often difficult to grasp eg 'rate' or 'process' etc. In the latter case the developing and enlarging role of the ESP teacher (Johns and Dudley-Evans, 1980; Skehan, 1980) suggests that in many situations the teaching of specialist vocabulary will be unavoidable since the language teacher is naturally being drawn closer to the specialist content of the subject involved.

Given these general considerations, the situation facing the ESP teacher is not clear — the development of specialist ESP wordlists and sub-technical vocabularies would be of tremendous benefit for the preparation and grading of specialist language teaching materials. The question is one of how such wordlists can be produced easily by the average language teacher to serve his local needs. The rest of this chapter will attempt to demonstrate the relative facility with which this can be accomplished.

The stages in wordlist production by computer

There are five stages to the problem. These will be described in turn.

1 **Input of texts.** Until recently the input of texts to a computer system in a form amenable to machine analysis was the most serious hurdle the investigator had to face. Texts could only be input as a result of expensive time-consuming keyboarding projects. Corpuses of texts were built up only slowly. The situation has changed rather dramatically in the last year or two. There are now available omni-font optical character readers which will accept virtually any typeface, allowing pages of a book to be 'photocopied' and transformed by machine into computer coded text. There are relatively few machines of this sort available at present, but this is likely to change markedly over the next five to ten years. As a consequence it is going to become progressively easier to augment existing corpuses and develop new ones. It will be possible either to organise text input locally by means of one of these machines, or obtain copies of such corpuses from established centres with very large files of text material. Accordingly local investigators will be increasingly able to examine and analyse the texts they are interested in.

2 **The production of basic wordlists.** Given that a text exists on the computer, the problem is to produce a frequency list of the words used in it. Since such a text may contain some 100,000 running words, this would seem a daunting task. In fact it is in such situations that text analysis packages

score heavily. Fig 1 shows the actual control cards used by the CLOC package to produce a wordlist of an economics text with a running word length of 86,000 words.

Fig 1 **Control cards for a CLOC job**

```
1 RUNCLOCDA DAFILE (505, EMMA-FILE), RESULTS
  ATBELIS, TIME 5 MINS,
2 GET TEXT
3 EVERY WORD
4 WORDLIST)ALPHA
5 FINISH
```

Two impressions stand out very clearly. First, the number of control cards[1] is remarkably small. This point can be emphasised further by noting that it is only card 1 which would be modified, by changing the name of the text file being accessed, to run other wordlist jobs. Second, the control cards used seem relatively understandable, even for someone unfamiliar with the intricacies of computers. Only brief explanation is required. The first line instructs the computer to run the CLOC package (RUNCLOC) with the large text file option (DA). It then specifies the file to be used (505, EMMA-FILE), using file number and name successively. This file contains an introductory economics textbook of 86,000 words. The third 'parameter' of the first control card instructs the computer to send the results of the job to a file called ATBELIS (ie *'A Textbook of Economics' Listing*), and the fourth and final parameter instructs the computer how much time should be allowed for the work. Incredibly enough, five minutes, the length of time allocated, was a generous estimate. In fact the complete wordlist only took three minutes and fifteen seconds to produce.

The next card (GET TEXT) instructs the computer that it needs to access a text held on file. If this card were not present the computer would assume that the text to be analysed was appended to the list of control cards, another option possible using CLOC. (In case there is any thought here that unnecessary duplication is involved, since the computer was also instructed to access a text file by the first control card, it should be explained that the first card is used by the operating system of the mainframe computer, while the second card is used by the CLOC package. The first card, amongst other things, triggers the running of the CLOC package, which, in turn, has to be

[1] Although the term 'control cards' is used, and punched cards could indeed be employed, they are becoming less and less common. It is more usual now for 'cards' to be replaced by lines typed in from a computer terminal, with a set of such lines building up to form a control file, such as that shown in Fig 1.

instructed that a text file must be accessed.) The third control card (EVERY WORD) specifies that all the words on the text are to be included in the analysis. Other options would select and perhaps exclude words according to various criteria.

The first three cards are, in a sense, preliminary. The heart of the job is contained in the next card (WORDLIST)ALPHA). This card instructs the package to make a wordlist of all the words on the text, arranging the output in alphabetical order. This output could alternatively be arranged in ascending or descending order of frequency, to highlight the most commonly occurring words. It will be recalled that the wordlist produced is sent to a file (ATEBELIS) which could be listed on the lineprinter at any time, or manipulated somewhat, as shown in succeeding sections. Finally the FINISH card instructs the computer that there are no more control cards, and that the job can be wound up.

3 **Standardisation and combination of wordlists.** The above job was run on four different economics texts. (Complete texts in three cases, a 25% sample of consisting of 50,000 words in the other.) Two problems emerge from this work. First the different lists have to be transformed to the frequencies that would occur with a text of 'base size' eg 100,000 words, so that inter-text comparison is meaningful. Second, the transformed or standardised lists for the four texts have to be combined. Both these tasks can be accomplished quite easily by means of programs written in BASIC (Kemeny and Kurtz, 1980). To illustrate the simplicity of this, the BASIC programme to standardise each of the four wordlists is shown as Fig 2.

Fig 2 **Program to standardise wordlists**

```
 10  REM     Program to standardise a wordlist
 20  INPUT   "Which wordlist do you want to standardise?"; A$
 30  INPUT   "What do you want to call the output file?"; B$
 40  INPUT   "How many words does the base text contain?"; A
 50  K = 100000/A
 60  OPEN    A$ FOR INPUT AS FILE #1
 70  OPEN    B$ FOR OUTPUT AS FILE #2
 80  IFEND   #1 THEN 500
 90  INPUT   #1,W$,N1
100  N2=K*N1
110  PRINT   #2,W$;",";N2
120  GOTO 80
500  END
```

This program asks for information about the files and base text to be standardised (lines 20-40), calculates a figure which transforms the frequency count observed to the one which one would expect to obtain if the text had been 100,000 words long (line 50), and opens the files needed for the job (lines 60-70). Then it checks that the input file has not been exhausted (line 80), inputs a word and its frequency count (line 90), transforms the frequency count to the expected value (line 100), and prints the word and the new standardised frequency to the output file (line 110). The cycle is then repeated until the file of input information has been exhausted. This is accomplished by the GOTO statement (line 120) which sends the program back to line 80, lines 80-120 being executed repeatedly.

Clearly the details of the program require some knowledge of BASIC. However the general outline is fairly transparent, and it is easy to see what each section of the program is doing. Indeed it clearly is not beyond the compass of the average ESP teacher to master the elements of programming at this level fairly quickly.

The second program in this section, used to combine several wordlists, is not much more complex in conception or execution but will not be given for reasons of space. The first page of the combined wordlist produced by the program is given in Appendix 1. It shows the words drawn from the texts and the frequencies with which they occured in each text.

4 **Selection**. Base wordlists such as that shown in Appendix 1 provide a comprehensive account of the words used in the four texts. They are not terribly helpful, however, since the ESP teacher is likely to be interested not in the case where a type is represented by only one or two tokens, but in types (words) which occur with some frequency. The problem is to select the words from the base wordlist which meet certain selectional criteria. This can easily be done by means of another BASIC program, as shown in Fig 3.

Again only a brief commentary is necessary to make the program understandable. First the user is asked the name of the base file to be accessed, the frequency and range criteria to be selected, and the name to be given to the output file (lines 10-35). Any frequency can be specified, while the range value can require that a word appear in one, two, three or all of the texts. Then the files are opened (lines 40-45). Next, a line of values, ie a word and its frequency in each of the texts, is input from the base file (line 60). The program then checks whether the frequency criterion has been met for each text. If it has a counter is augmented each time by one (lines 80-110). After the four comparisons the counter is checked against the

Fig 3 **Program to select frequently occurring words**

```
 10  INPUT   "WHAT FILE IS TO BE SELECTED FROM?"; A$
 20  INPUT   "HOW MANY LISTS MUST THE WORD APPEAR
             IN?"; S
 30  INPUT   "WHAT FREQUENCY MUST IT APPEAR AT?"; F
 35  INPUT   "WHAT DO YOU WANT TO CALL THE OUTPUT
             FILE?"; B$
 40  OPEN    A$ FOR INPUT AS FILE #1
 45  OPEN    B$ FOR OUTPUT AS FILE #2
 50  IFEND   #1 THEN 400
 60  INPUT   #1,W$,N1,N2,N3,N4
 70  R=0
 80  IF N1>F-1 THEN R=R+1
 90  IF N2>F-1 THEN R=R+1
100  IF N3>F-1 THEN R=R+1
110  IF N4>F-1 THEN R=R+1
120  IF R>S-1 THEN PRINT #2,W$,N1,N2,N3,N4:
     T1=T1+1:C1=C1+N1:C2=C2+N2:C3=C3+N3:C4=C4+N4
130  GOTO 50
400  PRINT "NO. OF WORDS =";T1
410  PRINT "COVERAGE STATISTICS FOR FOUR TEXTS =";
     C1,C2,C3,C4
500  END
```

range criterion the user has specified (line 120). If this criterion is met the word and its frequency values for each of the texts are printed as a line to the output file. If the criterion is not met, ie if the word does not occur frequently enough or with wide enough range, nothing happens. In other words the line being processed is not printed to the output file. The final part of this line (line 120), again only operative if the frequency criteria are met, cumulatively adds the number of tokens accounted for by the types which meet the conditions. This ultimately will provide an indication of the total coverage provided by the words in the new wordlist which has been selected from the base list. The program next returns to line 50 and repeats the whole process with the next line of the base file. In this way the entire base file is worked through, in a minute or so, with words which meet the prespecified criteria being sent to the output file, and the other words being ignored. At the end of the job, coverage statistics are printed at the computer terminal (lines 400-410) and the output file contains all the words which have satisfied the conditions specified.

Armed with a base wordlist and a program like this the ESP teacher is in the strong position of being able to play around with alternative hypotheses about coverage. The program outputs coverage statistics on each run, but there is no limit to the number of runs a researcher may make, changing the frequency and range criteria for each run as he sees fit. In this way pertinent information is provided which enables the investigator to decide on an optimal length wordlist which he may use as the basis for his teaching materials, where he may aim for a certain coverage figure eg 70%, 80% or 90%, and ensure that the list he uses is no longer than it absolutely has to be.

The results of several runs of this sort, using frequency values of 5,10,15 and 20, and range criteria of 1,2,3 and 4 are shown in Table 1. Clearly a few words can go a long way, 269 words (frequency of 20 (F=20) and range of 4 (R=4)) accounting for between 59% and 65% of the total running words in the four texts. Using different values with F=5 and R=3, we can see that 1334 words comfortably meet the 80% criterion. This means we have easily been able to identify the wordset needed to give at least 80% coverage of all the tokens used in the texts under consideration. Identifying the 90% wordset, or any other, would simply involve finding appropriate values for F and R.

Turning next to the actual words identified, the first pages of the lists produced when the program was run with values of (a) F=20 and R-4 and (b) F=5 and R=4 are shown in Appendices 2 and 3 respectively. The criteria for entry into the first list (Appendix 2) are quite stringent, only 269 words satisfying the conditions. Not surprisingly, the words that are included are very similar to those that one would find in a general wordlist of this size (see eg Hindmarsh, 1980). **About, again, after, could, day** are all words which would be prominent in any base vocabulary. There are, however, some interesting exceptions: **capital, costs, demand** and perhaps **developed** are specialist economics terms which occur with high frequency. Similarly there are a number of sub-technical words. It is difficult to be sure in all cases but it would seem probable that **amount, areas, available, case, choice, conditions** and **control** fall into this category.

Moving to the list shown in Appendix 3 (R=4, F=5), the same three groups of words emerge quite clearly. Here, once again, there are specialist words such as **agricultural** and **assets**; general words like **able, about, above**; and sub-technical lexis such as **ability, according, account, assistance, associated** and **assume**.

Table 1 **Coverage statistics**

Range	Frequency	No of words	Text 1	Text 2	Text 3	Text 4
	5	4186	95	94	94	94
	10	2303	90	89	90	90
1	15	1647	87	85	86	87
	20	1294	84	83	83	85
	5	2172	89	88	88	90
	10	1242	83	82	81	85
2	15	919	80	79	78	81
	20	711	76	76	74	78
	5	1334	84	82	81	85
	10	780	77	76	74	79
3	15	565	73	72	70	74
	20	448	70	69	67	72
	5	794	75	75	74	77
	10	468	69	69	67	72
4	15	347	65	66	63	68
	20	269	63	63	59	65

Two general points can be made about these results. First, the sub-technical items form a progressively higher percentage of the total number of words (types) as higher coverage figures are attained. With the most stringent selectional conditions (R=4, F=20), there are only eight sub-technical items and three or four technical words in the fifty-four shown in Appendix 2. In contrast, when R=4 and F=5, ie much more relaxed selectional criteria, twenty-five of the fifty-six words shown in Appendix 3 are sub-technical, and three are specialist. Other values for range and frequency confirm this impression. The less stringent the selectional conditions, the greater the proportion of sub-technical items, and the lower the proportion of general words, with specialist terms occuring at a fairly constant level throughout.

Secondly, the pattern of results has clear implications for teaching. General words of the frequency shown could be assumed to be known by most overseas students. Specialist terms, in contrast, could form the basis for subject teacher-language teacher co-operation. In subjects like economics this could also involve the language teacher in producing materials demonstrating the differences between the technical and ordinary meanings of words like

demand, **cost** and **developed**. Most important of all, though, are the sub-technical words. The results indicate the size of the problem in this area, in particular the higher proportions of sub-technical words in the wordsets necessary to achieve progressively higher coverage levels has an important implication. It is that if our aim is to put students into a position from which they can understand 80% to 90% of the total running words in texts the emphasis in vocabulary teaching must be on sub-technical words. In other words if students are to be able to guess utterance meaning effectively, and if a high enough percentage of total running words are to be known to allow fluent reading, overseas students will need substantial tuition with sub-technical words. It is work such as that reported here which can help to define the wordsets that ESP teachers need to work with, and which they will use as the basis for the production of language teaching materials.

Conclusions: perspectives on the use of computers in ESP

The research reported in this chapter does not claim to be a definitive. The purpose of the report is to illustrate how easily such results may be obtained. It is for that reason that a great deal of detail has been provided on the computer control cards used, and the programs written. The intention is not to pull the wool over anyone's eyes in terms of hidden sources of difficulty but rather to show how easy and accessible such research can be. The control cards and programs obviously could not be written after half an hour's instruction, but the amount of training required is not extensive. It is estimated here for example that the following periods of training would be required:

1	Control system procedures	3 hours
2	Package conventions and commands (CLOC or OCP0	3 hours
3	Programming in BASIC	6 hours

The twelve hours of instruction involved would amply repay the time spent.

It should be made clear that a particular research enquiry has been reported here – the use of CLOC to take the first steps towards the production of a base economics wordlist. However the training programme outline just given would allow the ESP teacher to accomplish much more than simply count words. This applies to packages such as CLOC or OCP since they allow a certain amount of flexibility. It applies even more forcefully to programming since the programs that can be written are limited only by the imagination and skill of the programmer.

In terms of the first point, most text analysis packages enable more sophisticated analyses than frequency counts to be made. CLOC, for example, contains two other options – the production of concordances and collocations. The importance of these procedures can be illustrated by means of potential developments of the present work. To a certain extent the wordlist research reported here represents the 'dumb' end of computational applications, since the fundamental unit of analysis used by the computer, the word, is defined for present purposes as anything between spaces or punctuation markers. Several problems stem from this. In particular the problems of homograph separation and phrasal verb connection have been ignored, on the assumption that the loss of information here is compensated for by the scale of the corpus used. However these are real problems, and it is important to point out that it is procedures like concordancing ie outputting contexts of occurrence for all tokens of a particular type, and collocations ie discovering which other words co-occur at unusual frequency with a base word, that provide the means for the solution of homograph and phrasal verb type problems.

Concordances and collocations, though, are important techniques in their own right. Concordances enable investigators to examine, fairly easily, the range of meanings expressed by a particular word. They could allow the ESP teacher to examine the specialist use of non-specialist terms, or perhaps the role of sub-technical vocabulary items. The potential is considerable. Collocations, on the other hand, are very revealing about the company particular words keep, a perennial source of difficulty for ESP (and general) learners. Collocational investigations could provide interesting material to indicate to learners which words co-occur, and, more to the point, which do not. This is an area in which relatively advanced learners of English are prone to make mistakes. Collocational analysis could provide useful material to help learners to avoid such errors.

Learning to program for oneself, of course, provides endless scope for research, since the flexibility available to the program writer is considerable. Two examples will make this clear. The programs discussed by Tim Johns (this volume) have been written in BASIC and they are language teaching materials. In them a text file is randomly selected, and the 'game player' is presented with a language problem used on the text displayed on the screen of a visual display unit.

In contrast to this, it is also possible to write programs to develop the research which has just been described. One project could be a program which will read a text file (ie an economics book) word by word, and output a version of the text which indicates whether a word in the text is included in a wordlist generated by the procedures described above, or not. In this

way detailed information can be obtained on the usefulness of a given word-list which goes beyond the relatively gross percentage coverage figures already given. This information could also form an important element in any decisions about the difficulty to overseas students of any given text.

The specific uses which have been made of CLOC and BASIC programs in the research reported here are not important. They are only illustrative. It is the flexibility and potential of computational techniques which is really the issue. That is why this final section has pointed out the range of approaches that is possible. The potential of computational applications for ESP teaching and research is enormous. What is lacking at the present time is ESP teaching expertise translated into useful computer based projects. It is likely that progress will come not from computer specialists learning about ESP, but from ESP teachers who make the effort to learn about computing. It is to be hoped that this progress will take place sooner rather than later.

APPENDIX 1:
FIRST PAGE OF BASE WORDLIST

A	2555	1908	1598	2543
AB	0	2	0	0
ABANDON	3	0	0	1
ABANDONED	3	11	0	1
ABANDONING	0	2	0	0
ABANDONMENT	3	0	0	0
ABILITIES	3	0	2	3
ABILITY	7	7	30	10
ABJECT	0	0	4	0
ABLE	50	39	28	54
ABOLISH	3	0	2	0
ABOLISHED	6	0	2	5
ABOLISHING	0	0	2	1
ABOLITION	0	0	2	0
ABORTION	0	5	0	0
ABOUND	0	2	0	0
ABOUT	195	100	148	50
ABOVE	19	32	46	47
ABOVE-AVERAGE	0	0	0	1
ABROAD	20	16	8	5
ABSENCE	0	30	6	2
ABSENCES	0	2	0	0
ABSENT	0	0	2	0
ABSENTEE	0	0	2	0
ABSENTEEISM	0	2	0	1
ABSOLUTE	1	5	20	3
ABSOLUTELY	0	0	2	2
ABSORB	1	11	0	0
ABSORBED	3	7	0	1
ABSORBS	1	2	0	0
ABSTAIN	0	5	0	0
ABSTAINED	0	2	0	0
ABSTAINING	0	0	2	0
ABSTENTION	0	2	0	3
ABSTINENCE	0	2	0	0
ABSTRACT	1	2	0	0
ABSTRACTIONS	0	0	8	0
ABSURD	0	2	0	1
ABSURDITY	0	2	0	0
ABUNDANCE	0	0	2	0

ABUNDANT	0	2	8	0
ABUSE	3	0	0	0
ABUSED	0	0	12	1
ACADEMIC	1	2	2	1
ACADEMICS	0	0	0	0
ACCEDE	0	0	8	1
ACCELERATE	0	2	2	0
ACCELERATED	0	5	2	0
ACCELERATING	0	2	6	0
ACCELERATION	0	2	0	0
ACCENTUATED	0	0	0	1
ACCENTUATING	0	9	2	14
ACCEPT	35	0	0	0
ACCEPTABILITY	7	0	2	
ACCEPTABLE	12			

APPENDIX 2:
SELECTED WORDLIST (R=4 ; F=5)

A	2555	1908	1598	2543
ABILITY	7	7	30	10
ABLE	50	39	28	54
ABOUT	195	100	148	50
ABOVE	19	32	46	47
ABROAD	20	16	8	5
ACCORDING	10	18	22	20
ACCOUNT	82	21	30	16
ACT	72	16	6	31
ACTION	20	14	6	17
ACTIVITIES	16	32	58	13
ACTIVITY	40	25	20	8
ACTUAL	6	27	40	36
ADDED	28	36	10	8
ADDITION	19	9	24	26
ADDITIONAL	10	30	44	37
ADOPTED	6	9	8	9
ADVANTAGE	19	48	10	33
AFFECT	20	11	10	21
AFTER	48	48	28	87
AGAIN	47	21	26	44
AGAINST	42	41	22	44
AGE	28	23	14	37
AGO	13	7	6	9
AGRICULTURAL	15	109	90	12
AGRICULTURE	15	75	30	10
ALL	372	160	280	264
ALMOST	16	27	70	28
ALONE	7	21	14	7
ALREADY	59	9	12	47
ALSO	173	239	166	124
ALTERNATIVE	12	14	42	17
ALTHOUGH	89	57	28	33
ALWAYS	51	34	22	40
AMOUNT	69	52	42	120
AMOUNTS	10	16	22	19
AN	405	401	374	395
AND	2288	2233	3919	1997
ANNUAL	23	21	34	5
ANOTHER	113	55	48	154
ANY	162	125	138	159

APPEAR	6	24	16	8
APPLIED	29	18	20	15
ARE	912	620	807	686
AREA	61	23	14	47
AREAS	45	25	38	70
ARISE	16	7	10	10
AS	752	745	953	737
ASSETS	29	5	12	16
ASSISTANCE	6	7	10	8
ASSOCIATED	19	30	10	7
ASSUME	12	25	32	23
ASSUMED	9	18	30	14
ASSUMPTION	6	7	16	14
ASSUMPTIONS	7	16	34	12
AT	499	369	407	589

APPENDIX 3:
SELECTED WORDLIST (R=4 ; F=20)

A	2555	1908	1598	2543
ABLE	50	39	28	54
ABOUT	195	100	148	50
AFTER	48	48	28	87
AGAIN	47	21	26	44
AGAINST	42	41	22	44
ALL	372	160	280	264
ALSO	173	239	166	124
ALTHOUGH	89	57	28	33
ALWAYS	51	34	22	40
AMOUNT	69	52	42	120
AN	405	401	374	395
AND	2288	2233	3919	1997
ANOTHER	113	55	48	154
ANY	162	125	138	159
ARE	912	620	807	686
AREAS	45	25	38	70
AS	752	745	953	737
AT	499	369	407	569
AVAILABLE	61	32	40	36
B	60	27	24	70
BE	1133	944	773	1523
BECAUSE	201	253	72	132
BECOME	50	36	28	37
BECOMES	23	21	26	44
BEEN	218	444	112	303
BEFORE	76	59	24	94
BEING	86	82	52	177
BEST	29	21	42	22
BETTER	50	55	44	30
BETWEEN	142	191	236	155
BOTH	57	80	166	82
BUT	369	533	338	321
BY	637	640	523	624
C	105	27	106	73
CAN	313	230	272	344
CANNOT	60	75	42	63
CAPITAL	88	435	150	351
CASE	78	116	52	126
CENT	76	203	198	47
CERTAIN	97	46	64	73

CHANGE	57	38	54	142
CHANGES	57	50	32	56
CHILDREN	22	34	46	22
CHOICE	31	32	66	51
CONDITIONS	34	34	64	101
CONTROL	56	41	36	38
COST	48	91	90	223
COSTS	47	41	78	118
COULD	111	114	62	85
COUNTRIES	120	820	396	34
COUNTRY	209	178	62	104
COURSE	34	75	22	29
D	32	41	96	56
DAY	42	21	30	20
DEMAND	87	144	224	476
DEVELOPED	32	96	244	27

SELMOUS CONFERENCE 1981 - REPORTS OF THE FOUR WORKING GROUPS

TEAM TEACHING

Rapporteur: Rob Nolasco

Team teaching can be characterised as **collaboration**. In this the language teacher and subject specialist work jointly but separately. The focus can be on communication or the subject itself. Examples include team evaluation of student assignments, subject specialist specification of the data for linguistic processing, work on dissertations, research proposals etc.

In team teaching as **intervention** the language teacher and subject specialist operate in tandem. In a characteristic example the language teacher records a random lecture, prepares an ephemeral handout and then goes over the lecture with the students. In this final session the subject lecturer is also present. A gap of up to a maximum of three days allows time for preparation. From the student point of view the material remains fresh and relevant. However, they do have time to try to assimilate the new information into an existing store, uncover misunderstandings, blocks etc. Group sizes of twelve (an optimum) to sixty were reported. Follow-up work was often set.

Joint ventures seem to depend crucially on the creation of a framework in which the professionalism of both sides can contribute to each other. Some factors necessary for the success of team teaching include:

1 **A clear definition of roles** in order to avoid student confusion. The language teacher operates mainly as an activator – increasing both the quality and quantity of interaction in feedback sessions by teasing problems out. Treatment at any linguistic level is possible but it tended to be reserved for serious communication problems. Often problems were not those predicted in advance. The subject specialist's role was mainly that of content judge and arbitrator on appropriacy of utterance.

2 The language teacher gaining a thorough grasp of the total **conceptual background** surrounding the text or lecture in question. Often this included material outside narrow subject boundaries and therefore paradoxically more accessible to the layman!

Some advantages included an improvement in the quality of interaction mentioned earlier. This may have been the result of threat reduction. Students can afford to be 'ignorant' in 'English' classes. Subject specialists

are freed to do more than re-present lectures. All parties desire greater insights in the nature of general and specific communication problems.

MOVITATION IN ESP

Group Discussion Report: R R Jordan

Motivation can be provided by the analogy of the carrot and the stick – incentive or spurs.

Incentives

1 highly relevant to courses/studies; at best, integrated with subject department or subject specialists.

2 very narrow and special, which causes its own problems (topics, ability of teacher to cope, inappropriateness of published material).

3 short-term goals eg if the English course component is essential or integrated within the whole subject course.

4 variety of activity eg communication activities, role-play, problem-solving, self-access, games.

5 evidence to student of progress made, thereby instilling a sense of achievement (eg tapes/photocopies of earlier work done).

Spurs

1 peer group pressure (to conform and achieve a certain level).

2 tests, exams, reports to supervisors/departments (regular).

WORKING PARTY ON THE POSSIBLE OVERLAP BETWEEN ESP AND L_1 COMMUNICATION SKILLS

Ray Williams

Participants were in some difficulty in that none of them were primarily teaching communication skills to native speakers. However, it was generally agreed that:

1 ESP would almost certainly benefit from greater awareness of current practices, developments and research in communication skills, particularly in areas such as academic writing, oral skills, and communication games.

2 Similarly, journals relating to communication skills (eg the *Journal of technical writing and communication*) often contained articles equally relevant to ESP.

3 Current practices and materials in communication studies were likely to be particularly relevant to the advanced ESP/EAP situation.

In general, participants recognised the potential value of greater familiarity with developments in the L_1 Communication Skills profession, and expressed the wish to know more.

DISCUSSION GROUP: THE USE OF BICYCLE PUMPS IN TEACHING ESP

The following suggestions were made for the use of bicycle pumps in teaching ESP.

1 Give a **physical description** of the pump, including details of measurements, materials, the shape, and the place where it is kept.

2 Give a **process description** relating, for example, the state of the valve to the position of the piston.

3 **Disassemble, re-assemble** and **inspect** the pump.

4 If the pump does not function correctly, go through a **check procedure** to locate the fault. The procedure and resulting suggestions can be **formal** or **informal**.

5 Make and test **hypotheses** about what can be done with a bicycle pump, eg can it inflate a balloon?

6 **Record** the number of pumping strokes required to inflate a tyre to different pressures.

7 Make a **graph** of the results and describe the shape.

8 Write a *Which?*-type **evaluation** of branded pumps.

9 Carry out **library research** to find out, for example, why the temperature of the pump rises in use.

10 Make a study of the **historical development** of pumps including, for example, changes in materials used and valve types.

11 Give an **expert** and/or **non-expert** explanation of how the pump works.

The group's list of suggestions came to an end here due to lack of time rather than lack of inspiration. The presentation of the suggestions was to have been accompanied by an experiment to test the hypothesis suggested in point five, but the presenter had unfortunately mislaid the necessary balloon.

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